

FINAL REPORT

**Groundwater IRM
3rd Quarter 2015
Groundwater Monitoring Report**

**GE Aviation
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November 2015



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3rd Quarter 2015
Groundwater Monitoring Report**

Evendale, Ohio

**Prepared for:
GE Aviation**

November 2015

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TABLE OF CONTENTS

List of Tables	ii
List of Figures.....	ii
List of Appendices	ii
1. Introduction	1
2. Methods	2
3. Summary of Monitoring Results.....	3
3.1 Groundwater Pumping System.....	3
3.2 Groundwater Elevations	3
3.3 Groundwater Quality.....	3
4. References.....	5

LIST OF TABLES

- Table 1 – Summary of Performance Monitoring Assessment – 3Q-15
- Table 2 – Well Completion Data – Groundwater Level Monitoring
- Table 3 – Well Completion Data – Groundwater Quality Monitoring
- Table 4 – Summary of Groundwater Sampling Results (3Q-15) – Detected Parameters Only
- Table 5 – Summary of Groundwater Chemical Cross-Contamination Analyses

LIST OF FIGURES

- Figure 1 – Groundwater IRM Monitoring Locations
- Figure 2 – Perched Unit Estimated Drawdown and Capture Zone
- Figure 3 – USG Unit Estimated Drawdown and Capture Zone
- Figure 4 – LSG Unit Estimated Drawdown and Capture Zone
- Figure 5 – Groundwater Elevation Hydrographs, Perched Unit
- Figure 6 – Groundwater Elevation Hydrographs, USG Unit
- Figure 7 – Groundwater Elevation Hydrographs, LSG Unit
- Figure 8 – Perched Aquifer Historical Groundwater Analytical Results for IRM Monitoring Wells
- Figure 9 – USG Aquifer Historical Groundwater Analytical Results for IRM Monitoring Wells
- Figure 10 – LSG Aquifer Historical Groundwater Analytical Results for IRM Monitoring Wells
- Figure 11 – Total CVOC Concentration Plots – Extraction Wells

LIST OF APPENDICES

- Appendix A – IRM Groundwater Sampling Program QA/QC Results and Data Verification

1. INTRODUCTION

O'Brien & Gere has prepared this report on behalf of the General Electric Company (GE) to present the results of groundwater monitoring activities conducted during July through September 2015 (herein referred to as Third Quarter 2015) at the GE Aviation facility located in Evendale, Ohio. The quarterly monitoring event was conducted in accordance with the approach and methods outlined in the 2010 IRM Performance Monitoring Plan (PMP) prepared by O'Brien & Gere.

Groundwater monitoring was conducted to monitor the temporal effect on groundwater conditions of a groundwater Interim Remedial Measure (IRM). The groundwater IRM, which includes the operation of seven groundwater extraction wells and a groundwater treatment plant (GWTP), has been installed on the southern portion of the GE Aviation manufacturing facility (Facility) in Evendale, Ohio, within an area known as the former Air Force Plant 36 (AFP 36) ([Figure 1](#)). The groundwater remedial measure was initiated as an IRM under a RCRA Corrective Action Permit with the objective of mitigating off-site migration of compounds of potential concern (COPCs), while minimizing the risk of cross-contamination and/or reducing the effectiveness of biodegradation processes.

Groundwater monitoring data are evaluated and reported after each sampling event, including evaluations of quality assurance, cross-contamination potential, and significant short-term anomalies. A summary of the performance monitoring assessment for Third Quarter 2015, including responses to the key study questions outlined in the PMP, is provided in [Table 1](#). Relevant details are provided herein. Long-term trends and overall remediation progress will be evaluated and reported annually, at the end of each year.

2. METHODS

The groundwater monitoring network (**Figure 1**) consists of a total of 116 wells completed in three water-bearing units (Perched Zone, Upper Sand and Gravel (USG), and Lower Sand and Gravel (LSG)). As outlined in the PMP, the general scope of groundwater monitoring activities includes:

- Groundwater level monitoring using manual electronic as well as pressure transducer measurements at frequencies outlined in the PMP. Monitoring was conducted using a total of 66 wells completed in the Perched Zone (21 wells), USG (23 wells), and LSG (22 wells). **Table 2** provides a listing of the wells utilized for Progress Monitoring.
- Groundwater quality sampling was conducted using passive diffusion bag samplers (PDBs) for analysis of volatile organic compounds (VOCs) and in-situ field bioparameters (*e.g.*, dissolved oxygen [DO] and oxidation-reduction potential [ORP]), in accordance with frequencies outlined in the PMP. Groundwater samples were collected from a total of 44 wells completed in the Perched Zone (12 wells), USG (17 wells), and LSG (15 wells) (**Table 3**).
- Monthly sampling of groundwater from actively pumping extraction wells for analysis of VOCs.
- Evaluation of data from groundwater level and quality monitoring, including statistical analysis to address hydrogeologic conditions of stability (equilibrium) and potential cross-contamination.

Well completion data for groundwater level and quality monitoring are summarized in **Tables 2** and **3**, respectively. Methods and procedures for groundwater monitoring were conducted in accordance with the U.S. Environmental Protection Agency (USEPA) approved Sampling and Analysis Plan (SAP) (O'Brien & Gere, 2009) and the PMP. Additional details on field methods are provided in *Groundwater IRM, Quarterly Groundwater Monitoring Report – 3rd Qtr – 2012* (O'Brien & Gere, 2013).

Field quality control (QC) samples included trip blanks, field duplicates, and matrix spike/matrix spike duplicates (MS/MSDs). The QC samples were prepared in accordance with Section 3.3 of the SAP, using the frequencies specified in the Quality Assurance Project Plan (QAPP) tables contained in the SAP. Laboratory QA measures are identified in the SAP.

3. SUMMARY OF MONITORING RESULTS

Groundwater monitoring during the Third Quarter 2015 consisted of the collection and analysis of groundwater level and quality data to evaluate the occurrence of cross-contamination and significant short-term anomalies. A summary of the performance monitoring assessment is presented in [Table 1](#) and additional details are provided below.

An electronic copy of the laboratory analytical report is included in the attached CD. The laboratory analytical results for VOCs underwent Level A data review and verification by O'Brien & Gere ([Appendix A](#)) for the Third Quarter 2015 data.

3.1 GROUNDWATER PUMPING SYSTEM

- The overall IRM system average flow rate was 207 gallons per minute (gpm) and the run-time was approximately 99%. The Pilot Study was initiated on August 11, 2015 and included cycling EW-7S on and off at the schedule prescribed in the Pilot Study Plan; however, EW-8D was inadvertently cycled on and off along with EW-7S until September 8, 2015 when EW-8D was turned on and left on until it will be cycled later in the Pilot Study. Extraction well average flow rates and durations for the Third Quarter 2015 include:
 - » Perched Zone – 18 gpm (EW-6P) to 45 gpm (EW-4P)
 - » USG – 4 gpm (EW-7S, except during Pilot Study, where average rate dropped to 3 gpm due to cycling of EW-7S on and off)
 - » LSG – 50 gpm (EW-3D) and 49 gpm (EW-8D, except during Pilot Study when pumping rate averaged 30 gpm).

3.2 GROUNDWATER ELEVATIONS

- Groundwater elevation data were used to create hydrographs ([Figures 5 through 7](#)) and calculate vertical hydraulic gradients between select nested wells for trend and statistical analysis. The results of these analyses were used to evaluate the potential occurrence of cross-contamination and equilibrium conditions (as summarized in [Table 1](#)) as well as estimate the capture zone of each extraction well(s) ([Figures 2 through 4](#)).

3.3 GROUNDWATER QUALITY

- Groundwater quality data for Third Quarter 2015 are provided in [Table 4](#). Groundwater quality data were summarized via time-series analyses for individual and nested monitoring wells ([Figures 8 through 10](#)). In addition, statistical analyses were conducted to assess pumping risk associated with vertical and/or lateral cross-contamination ([Table 5](#)). Groundwater quality data and associated intrawell statistical analyses do not show significant trends or triggers in VOC concentrations indicative of cross-contamination, with the following noted exceptions:
 - » AF-25P and TMW-1P showed decreasing concentrations in the latest sampling round, but remain elevated relative to the prior year values, after increasing during recent quarterly events. The increase was previously concluded to be associated with plume movement within the system capture zone.
 - » OSMW-9S showed decreased concentrations, but remains elevated.
 - » OSMW-1S and OSMW-11S showed increased concentrations of cis-1,2-DCE (690 µg/l) and VC (520 µg/l), and TCE (40 µg/l) and cis-1,2-DCE (170 µg/l), respectively following low ppb concentrations during the last quarterly event.
 - » OSMW-1D showed increased VC (49 µg/l) and cis-1,2-DCE (18 µg/l) concentrations from 8.1 µg/l and 1.3 µg/l, respectively last quarterly event.
 - » OSMW-3D showed increased TCE (270 µg/l) and cis-1,2-DCE (190 µg/l) concentrations, compared to non-detect and 11 µg/l, respectively, in the last quarterly event. However, the VC concentration decreased from 43 µg/l last event to 1.5 µg/l this event.

- » OSMW-6D remains elevated.
- » TMW-2D showed decreasing concentrations, but remains elevated.
- Groundwater quality data for extraction wells and IRM system influent samples indicate steady or decreasing concentrations of CVOCs (**Figure 11**) with the exception of:
 - » EW-3D showed increasing trends since May 2015 in TCE and cis- and trans-1,2-DCE associated with plume movement and degradation.
 - » EW-7S, which exhibited increasing cis-1,2-DCE and VC concentrations associated with the reduced pumping rate in this well.

4. REFERENCES

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Tables

Table 1

GE OHD 000 817 312
GE Aviation_Evendale, Ohio - Groundwater IRM
Summary of Performance Monitoring Assessment - 3Q-15

	PRIMARY DATA GROUP	KEY QUESTIONS	YES	NO	COMMENTS
GROUNDWATER ELEVATIONS	Hydrographs/Trends	Significant trends identified?			Background groundwater levels decreased overall in the Perched, USG and LSG due to seasonal affects; however, water levels increased slightly in mid-July through early to mid-August due to three noteworthy rainfall events on July 12-13, 2015, August 3, 2015 and August 6, 2015, then decreased the rest of 3Q-2015.
		Perched	✓		Noticeable rise in water levels especially in Perched due to heavy rainfall events on July 12-13, 2015, August 3, 2015 and August 6, 2015. Also, recovery and drawdown curves are noticeable within the USG and LSG in response to the cycling of EW-7S and EW-8D during the on going Pilot Study.
		USG	✓		
		LSG	✓		
	Vertical Gradients	Depression of water levels maintained?	✓		Slight reduction in drawdowns overall in the Perched, USG and LSG compared to 2Q-15, but not resulting in significant change in capture zones. Very limited for USG due to reduced pumping rate and cycling of EW-7S during the Pilot Study.
		Active pumping maintaining gradient reversal?		✓	AF-7P/S maintained; AF-4P/S - no due to EW-6P operational problems; AF-11S/D - no due to reduction in EW-7S pumping; OSMW-4S/D - generally no due to reduction in EW-7S pumping and cycling of EW-7S during Pilot Study.
		Statistically significant increasing (downward vertical) trends?		✓	No, except the correlation between the background water levels (GM-9 series) in the Perched, USG and LSG are affected by greater response in the Perched than the USG and LSG to rainfall.
	Equilibrium/Capture Zones	Steady state/equilibrium maintained?	✓		Very slight reduction in drawdowns overall compared to 2Q-15
		Capture zone maintained at or near design?	✓		Except for USG where capture zone is smaller than designed
GROUNDWATER QUALITY	Chemical Trends	Significant trends identified?			
		Perched		✓	AF-25P, TMW-1P - decreased, but remain elevated associated with plume movement/IRM pumping
		USG		✓	OSMW-1S and OSMW-11S - increased potentially associated with plume movement - continue to monitor; AF-11S, OWMW-9S decreased after increasing last event
		LSG		✓	TMW-2D decreased after increasing last event, but remains elevated - continue to monitor; OSMW-6D slight increased associated with VC increase; OSMW-1D and OSMW-3D - increased after decreasing last event - continue to monitor
		Field bioparameters - indicative of cross-contamination?		✓	
	Vertical Cross-Contamination	Field bioparameters - reduced biodegradation effectiveness?		✓	AF-4P and AF-25P - DO and/or ORP increased - continue to monitor
		Nested wells - vertical cross-contamination?		✓	
		Potential off-site sources inhibiting remediation?		✓	
	Influent Concentrations	Significant trends identified?		✓	EW-3D - slight increase appears to be associated with plume movement and degradation; EW-7S (cis-1,2-DCE and VC) - increase associated with reduction in pumping rate; other wells/constituents decreasing due to degradation/capture
		Statistical trends - Stable (no significant trends)?	✓		Except for EW-7S - increasing cis-1,2-DCE and VC associated with reduced capture zone for EW-7S
		Is continued pumping beneficial?	✓		
		Statistical trends - Decreasing (significant negative trend)?	✓		
		Optimize or re-evaluate?		✓	Except for EW-7S and EW-8D
Note	Key questions in BOLD are PMP Problem Study Questions				

Table 2

GE OHD 000 817 312
GE Aviation Evendale, Ohio - Groundwater IRM
Well Completion Data - Groundwater Level Monitoring

Water-Bearing Zone	Well ID - Groundwater Level Monitoring			Transducer ³	Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter (inches)	Well Screen				Total Depth (ft bTOC) ⁴	
	Hydraulic Control Monitoring	Progress Monitoring ¹	Semiannual Monitoring ²							Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)		
Perched															
	AF-2P	AF-2P	AF-2P		456379.19	1418008.71	562.10	563.39	2.00	28.00	534.10	33.00	529.10	34.46	
			AF-3P		456297.40	1417884.19	560.40	561.82	2.00	21.00	539.40	31.00	529.40	32.42	
	AF-4P	AF-4P		T	456180.93	1417877.42	560.40	561.90	2.00	24.50	535.90	34.50	525.90	36.21	
	AF-5P	AF-5P	AF-5P		455882.90	1417831.43	559.80	561.22	2.00	28.00	531.80	33.00	526.80	34.75	
	AF-6P	AF-6P			456059.85	1417402.52	559.80	561.68	2.00	27.70	532.10	32.70	527.10	35.34	
	AF-7P	AF-7P	AF-7P	T	455478.24	1417577.30	559.80	561.21	2.00	31.50	528.30	36.50	523.30	37.43	
	AF-10P	AF-10P			456127.64	1416977.53	559.90	561.48	2.00	17.40	542.50	22.40	537.50	23.68	
	AF-12P	AF-12P			456295.77	1416183.22	574.20	575.05	2.00	14.50	559.70	19.50	554.70	20.78	
	AF-13P	AF-13P			456494.02	1416526.13	565.40	566.82	2.00	35.37	530.03	45.37	520.03	32.45	
		AF-14P			456528.73	1416790.19	559.53	558.54	2.00	17.50	542.03	27.50	532.03	28.92	
	AF-23P	AF-23P	AF-23P		457010.00	1417595.00	560.00	559.75	2.00	22.88	537.12	32.88	527.12	32.15	
	AF-24P		AF-24P		456451.17	1417576.18	559.82	558.89	2.00	26.23	533.59	36.23	523.59	35.40	
	AF-25P	AF-25P	AF-25P	T	456074.92	1417500.43	558.40	558.08	2.00	23.27	535.13	33.27	525.13	33.10	
	AF-26P				456122.18	1417674.94	558.30	557.78	2.00	30.96	527.34	40.96	517.34	35.44	
			AOC LDMW-1S		457924.00	1417429.00	556.20	555.81	2.00	13.29	542.91	23.29	532.91	22.90	
			AOC PSTMW-1SR		459022.76	1417784.33	556.91		2.00						
			AOC PSTMW-2S		458993.37	1417998.15	559.90	559.70	2.00	18.50	541.40	28.50	531.40	24.50	
	GM-3P				457074.62	1418304.17	559.50	559.24	2.00	19.30	540.20	29.30	530.20	29.3 ⁴	
	GM-9P	GM-9P		T	457104.10	1417217.11	560.30	559.95	2.00	18.00	542.30	28.00	532.30	27.65	
			H-221		454547.97	1417264.66	554.70	554.37	2.00	20.00	534.70	30.00	524.70	28.65	
	OSMW-1P	OSMW-1P	OSMW-1P	T	455078.23	1417736.02	551.50	554.09	2.00	20.00	531.50	30.00	521.50	32.53	
	OSMW-2P	OSMW-2P	OSMW-2P		455601.82	1417822.50	554.80	557.01	2.00	27.00	527.80	37.00	517.80	38.87	
	OSMW-10P	OSMW-10P			T	455020.27	1417400.34	555.82	558.57	2.00	20.00	535.82	30.00	525.82	32.57
	OSMW-11P	OSMW-11P				455459.30	1418006.45	552.04	551.71	2.00	13.00	539.04	23.00	529.04	22.93
	OSMW-12P					455880.25	1418332.91	553.66	553.35	2.00	14.70	538.96	24.70	528.96	24.63
	OW-1P					455883.50	1417685.55	559.42	559.75	2.00	30.00	529.42	35.00	524.42	35 ⁴
	PMW-3P	PMW-3P		T	455249.65	1417470.90	557.41	560.10	2.00	16.00	541.41	26.00	531.41	29.07	
	PMW-5P	PMW-5P				1417293.42	455489.81	559.11	558.71	2.00	20.15	538.96	30.15	528.96	29.75
	PMW-6P	PMW-6P				1417456.08	455769.69	561.50	561.10	2.00	28.57	532.93	38.57	522.93	38.17
	TMW-1P	TMW-1P		T	455737.69	1417702.75	559.77	562.12	2.00	22.00	537.77	32.00	527.77	33.84	
	TMW-2P	TMW-2P				455595.65	1416931.21	556.94	559.71	2.00	28.50	528.44	33.50	523.44	38.45

See notes on page 3.

Table 2

GE OHD 000 817 312
GE Aviation Evendale, Ohio - Groundwater IRM
Well Completion Data - Groundwater Level Monitoring

Water-Bearing Zone	Well ID - Groundwater Level Monitoring			Transducer ³	Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter (inches)	Well Screen				Total Depth (ft bTOC) ⁴	
	Hydraulic Control Monitoring	Progress Monitoring ¹	Semiannual Monitoring ²							Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)		
USG															
	AF-4S	AF-4S		T	456183.67	1417879.81	560.30	562.22	2.00	43.00	517.30	53.00	507.30	54.03	
	AF-5S	AF-5S	AF-5S		455887.32	1417833.15	559.60	561.60	2.00	41.00	518.60	51.00	508.60	51.92	
	AF-6S	AF-6S			456056.40	1417402.71	560.10	562.67	2.00	41.00	519.10	51.00	509.10	52.80	
	AF-7S	AF-7S	AF-7S	T	455482.27	1417577.68	559.70	562.02	2.00	45.00	514.70	55.00	504.70	56.68	
	AF-8S	AF-8S			455524.80	1417088.16	559.10	561.08	2.00	50.00	509.10	50.00	499.10	60.00	
	AF-9S	AF-9S	AF-9S	T	455790.53	1416793.04	562.00	564.19	2.00	50.00	512.00	60.00	502.00	61.75	
	AF-10S	AF-10S			456134.19	1416979.21	559.90	561.98	2.00	61.00	498.90	71.00	488.90	67.75	
	AF-11S	AF-11S		T	456094.23	1416577.99	564.70	565.20	2.00	53.00	511.70	63.00	501.70	63.27	
	AF-12S	AF-12S			456295.87	1416186.19	574.00	575.41	2.00	64.00	510.00	74.00	500.00	72.31	
	AF-13S	AF-13S			456488.94	1416522.95	565.20	567.91	2.00	46.50	518.70	56.50	508.70	56.5 ⁴	
	AF-14S	AF-14S			456526.22	1416788.87	559.50	558.56	2.00	56.50	503.00	66.50	493.00	66.5 ⁴	
	AF-19S	AF-19S		T	455823.23	1417037.78	561.60	563.87	2.00	52.40	509.20	62.40	499.20	64.65	
	AF-20S	AF-20S			455927.77	1416940.35	559.80	562.47	2.00	59.00	500.80	69.00	490.80	71.57	
	GM-9S	GM-9S			T	457108.81	1417214.23	561.00	560.13	2.00	43.00	518.00	53.00	508.00	52.09
	OSMW-1S	OSMW-1S	OSMW-1S	T	455082.59	1417738.59	551.50	554.14	2.00	41.00	510.50	51.00	500.50	52.84	
	OSMW-3S	OSMW-3S	OSMW-3S	T	455309.01	1417107.64	557.10	559.91	2.00	54.00	503.10	64.00	493.10	66.60	
	OSMW-4S	OSMW-4S	OSMW-4S	T	456144.10	1416386.57	565.50	565.10	2.00	65.00	500.50	75.00	490.50	75.84	
			OSMW-5S		453589.27	1416137.49	576.70	576.44	2.00	63.80	512.90	73.80	502.90	73.54	
			OSMW-6S		455149.40	1416267.11	586.61	586.38	2.00	80.00	506.61	90.00	496.61	88.78	
			OSMW-8S		454625.51	1415147.34	584.64	584.33	2.00	77.41	507.23	87.41	497.23	86.70	
	OSMW-9S	OSMW-9S			455705.63	1415409.73	594.66	594.37	2.00	88.80	505.86	98.80	495.86	101.30	
	OSMW-10S	OSMW-10S		T	455019.93	1417400.39	555.82	558.59	2.00	47.20	508.62	57.20	498.62	58.20	
	OSMW-11S	OSMW-11S			455459.42	1418006.57	552.04	551.64	2.00	37.25	514.79	47.25	504.79	47.20	
	PMW-3S	PMW-3S		T	455249.82	1417470.89	557.41	560.12	2.00	44.80	512.61	54.80	502.61	57.40	
	TMW-1S	TMW-1S	TMW-1S	T	455739.88	1417703.19	559.78	561.63	2.00	48.30	511.48	58.30	501.48	59.75	
	TMW-2S	TMW-2S	TMW-2S		455597.25	1416929.92	557.01	560.15	2.00	40.00	517.01	50.00	507.01	53.08	

See notes on page 3.

Table 2

GE OHD 000 817 312
GE Aviation Evendale, Ohio - Groundwater IRM
Well Completion Data - Groundwater Level Monitoring

Water-Bearing Zone	Well ID - Groundwater Level Monitoring			Transducer ³	Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter (inches)	Well Screen				Total Depth (ft bTOC) ⁴
	Hydraulic Control Monitoring	Progress Monitoring ¹	Semiannual Monitoring ²							Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)	
LSG														
	AF-1D				456927.14	1417977.19	559.80	559.78	4.00	108.00	451.80	118.00	441.80	118.00
	AF-5D		AF-5D		455889.87	1417834.37	559.50	561.66	2.00	100.00	459.50	110.00	449.50	108.1
	AF-7D	AF-7D	AF-7D	T	455489.28	1417578.92	559.70	561.23	4.00	109.00	450.70	119.00	440.70	118.77
	AF-8D				455517.69	1417091.88	559.00	560.73	4.00	86.00	473.00	96.00	463.00	93.72
	AF-9D	AF-9D		T	455794.33	1416786.95	562.20	563.93	4.00	78.00	484.20	88.00	474.20	93.30
	AF-11D	AF-11D		T	456087.97	1416583.70	564.90	566.27	4.00	92.00	472.90	102.00	462.90	101.79
	AF-12D	AF-12D			456297.35	1416191.94	573.30	575.45	4.00	102.00	471.30	112.00	461.30	111.85
	AF-15D	AF-15D			456991.44	1416851.88	559.80	560.95	4.00	103.00	456.80	113.00	446.80	112.86
	AF-16D				457003.87	1417280.19	560.40	561.83	4.00	91.00	469.40	101.00	459.40	102.57
	AF-17D	AF-17D			456484.75	1417467.78	560.30	561.37	4.00	90.00	470.30	100.00	460.30	99.48
	AF-19D	AF-19D		T	455818.36	1417039.55	561.70	564.10	2.00	81.20	480.50	91.20	470.50	93.40
	AF-20D	AF-20D			455933.76	1416941.09	559.80	562.52	2.00	81.10	478.70	91.10	468.70	93.56
	AF-21D	AF-21D	AF-21D		455941.03	1416777.12	560.00	559.61	2.00	80.00	480.00	90.00	470.00	90.11
	GM-3D				457163.25	1418266.08	560.80	562.47	4.00	138.00	422.80	148.00	412.80	148.00
	GM-5D				457241.00	1416754.00	562.00	564.07	4.00	126.43	455.57	116.43	445.57	116.75 ⁴
	GM-9D	GM-9D		T	457107.93	1417219.35	561.00	560.06	4.00	100.00	461.00	110.00	451.00	109.30
	H-223	H-223			454519.10	1417253.00	555.00	555.60	2.00	154.50	400.50	164.50	390.50	161.51
	OSMW-1D	OSMW-1D	OSMW-1D	T	455082.67	1417738.40	551.10	554.16	2.00	80.00	471.10	90.00	461.10	92.75
	OSMW-3D	OSMW-3D	OSMW-3D	T	455309.10	1417107.28	557.10	559.91	2.00	131.00	426.10	141.00	416.10	143.31
	OSMW-4D	OSMW-4D	OSMW-4D	T	456143.93	1416386.96	565.50	565.14	2.00	127.00	438.50	137.00	428.50	135.94
			OSMW-5D		452875.51	1416398.42	560.53	560.25	2.00	121.00	439.53	131.00	429.53	130.72
	OSMW-6D	OSMW-6D	OSMW-6D		455147.40	1416265.11	586.38	586.08	2.00	149.77	436.61	159.77	426.61	162.20
	OSMW-7D	OSMW-7D	OSMW-7D		456711.82	1415686.05	592.44	592.09	2.00	141.00	451.44	151.00	441.44	148.80
			OSMW-8D		454625.45	1415147.03	584.64	584.34	2.00	175.30	409.34	185.30	399.34	187.20
	OSMW-9D	OSMW-9D			455705.86	1415409.84	594.66	594.39	2.00	166.00	428.66	176.00	418.66	175.60
	OSMW-10D	OSMW-10D		T	455020.11	1417400.16	555.82	558.61	2.00	130.00	425.82	140.00	415.82	142.63
	OSMW-11D				455459.26	1418006.71	552.04	551.72	2.00	81.00	471.04	91.00	461.04	90.30
	OSMW-11DD				455459.02	1418006.62	552.04	551.68	2.00	140.00	412.04	150.00	402.04	149.83
	OSMW-12D				455880.20	1418333.14	553.66	553.29	2.00	123.00	430.66	133.00	420.66	133.76
	OSMW-12DD				455880.36	1418333.21	553.66	553.18	2.00	141.00	412.66	151.00	402.66	149.20
	OSMW-13D				455241.33	1417853.92	552.03	551.82	2.00	96.00	456.03	106.00	446.03	103.65
	OSMW-13DD				455241.62	1417854.06	552.03	551.70	2.00	142.00	410.03	152.00	400.03	151.84
	OW-3D				455360.77	1417112.74	557.72	557.43	2.00	135.00	422.72	140.00	417.72	140 ⁴
	OW-4D				455422.91	1417165.94	559.68	559.41	2.00	135.00	424.68	140.00	419.68	140 ⁴
	PMW-2D	PMW-2D			456024.30	1417902.40	560.05	562.47	2.00	125.00	435.05	135.00	425.05	139.70
	PMW-3D	PMW-3D		T	455249.80	1417471.07	557.41	560.04	2.00	126.00	431.41	136.00	421.41	139.75
	PMW-4D	PMW-4D			456424.32	1416617.44	564.33	567.25	2.00	130.00	434.33	140.00	424.33	142.51
	TMW-1D	TMW-1D			455740.26	1417702.92	559.78	562.02	2.00	94.30	465.48	104.30	455.48	106.45
	TMW-2D	TMW-2D	TMW-2D		455597.15	1416930.07	557.01	559.86	2.00	117.30	439.71	127.30	429.71	129.32

Notes

¹ Quarterly Progress Monitoring in the Perched, USG and LSG.² Semiannual sampling occurs in the second and fourth quarters.³ T = Transducer; Blank = Manual.⁴ Total depths from ground surface (GM-3P, OW-1P, AF-1S, AF-14S, GM-5D, OW-3D, OW-4D)

Table 3

GE OHD 000 817 312
GE Aviation Evendale, Ohio - Groundwater IRM
Well Completion Data - Groundwater Quality Monitoring

Water-Bearing Zone	Well ID - VOC Sampling			Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter	Well Screen				Total Depth (ft bTOC) ³
	Hydraulic Control Monitoring	Progress Monitoring ¹	Semiannual Monitoring ²						Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)	
Perched													
			AF-2P	456379.19	1418008.71	562.10	563.39	2.00	28.00	534.10	33.00	529.10	34.46
			AF-3P	456297.40	1417884.19	560.40	561.82	2.00	21.00	539.40	31.00	529.40	32.42
AF-4P	AF-4P			456180.93	1417877.42	560.40	561.90	2.00	24.50	535.90	34.50	525.90	36.21
	AF-5P	AF-5P		455882.90	1417831.43	559.80	561.22	2.00	28.00	531.80	33.00	526.80	34.75
AF-7P	AF-7P	AF-7P		455478.24	1417577.30	559.80	561.21	2.00	31.50	528.30	36.50	523.30	37.43
AF-13P	AF-13P			456494.02	1416526.13	565.40	566.82	2.00	3.13	562.27	13.13	552.27	15.4 ³
			AF-23P	457010.00	1417595.00	560.00	559.75	2.00	22.88	537.12	32.88	527.12	32.15
			AF-24P	456451.17	1417576.18	559.82	558.89	2.00	26.23	533.59	36.23	523.59	35.40
AF-25P	AF-25P	AF-25P		456074.92	1417500.43	558.40	558.08	2.00	23.27	535.13	33.27	525.13	33.10
			AOC LDMW-1S	457924.00	1417429.00	556.20	555.81	2.00	13.29	542.91	23.29	532.91	22.90
			AOC PSTMW-1SR	459022.76	1417784.33	556.91		2.00					
			AOC PSTMW-2S	458993.37	1417998.15	559.90	559.70	2.00	18.50	541.40	28.50	531.40	24.50
			H-221	454547.97	1417264.66	554.70	554.37	2.00	20.00	534.70	30.00	524.70	28.65
	OSMW-1P	OSMW-1P		455078.23	1417736.02	551.50	554.09	2.00	20.00	531.50	30.00	521.50	32.53
			OSMW-2P	455601.82	1417822.50	554.80	557.01	2.00	27.00	527.80	37.00	517.80	38.87
	OSMW-10P			455020.27	1417400.34	555.82	558.57	2.00	20.00	535.82	30.00	525.82	32.57
	OSMW-11P			455459.30	1418006.45	552.04	551.71	2.00	13.00	539.04	23.00	529.04	22.93
	OSMW-12P			455880.25	1418332.91	553.66	553.35	2.00	14.70	538.96	24.70	528.96	24.63
	OSMW-13P			455241.47	1417854.22	552.03	551.75	2.00	22.00	530.03	32.00	520.03	32.45
PMW-3P	PMW-3P			455249.65	1417470.90	557.41	560.10	2.00	16.00	541.41	26.00	531.41	29.07
TMW-1P	TMW-1P			455737.69	1417702.75	559.77	562.12	2.00	22.00	537.77	32.00	527.77	33.84
USG													
	AF-4S	AF-4S		456183.67	1417879.81	560.30	562.22	2.00	43.00	517.30	53.00	507.30	54.03
		AF-5S	AF-5S	455887.32	1417833.15	559.60	561.60	2.00	41.00	518.60	51.00	508.60	51.92
AF-6S	AF-6S			456056.4	1417402.71	560.10	562.67	2.00	41.00	519.10	51.00	509.10	52.80
AF-7S	AF-7S	AF-7S		455482.27	1417577.68	559.70	562.02	2.00	45.00	514.70	55.00	504.70	56.68
AF-9S	AF-9S	AF-9S		455790.53	1416793.04	562.00	564.19	2.00	50.00	512.00	60.00	502.00	61.75
AF-11S	AF-11S			456094.23	1416577.99	564.70	565.20	2.00	53.00	511.70	63.00	501.70	63.27
AF-13S	AF-13S			456488.94	1416522.95	565.20	567.91	2.00	45.60	519.60	55.60	509.60	55.6 ³
AF-19S	AF-19S			455823.23	1417037.78	561.60	563.87	2.00	52.40	509.20	62.40	499.20	64.65
OSMW-1S	OSMW-1S	OSMW-1S		455082.59	1417738.59	551.50	554.14	2.00	41.00	510.50	51.00	500.50	52.84
OSMW-3S	OSMW-3S	OSMW-3S		455309.01	1417107.64	557.10	559.91	2.00	54.00	503.10	64.00	493.10	66.60
OSMW-4S	OSMW-4S	OSMW-4S		456144.10	1416386.57	565.50	565.10	2.00	65.00	500.50	75.00	490.50	75.84
		OSMW-5S		453589.27	1416137.49	576.70	576.44	2.00	63.80	512.90	73.80	502.90	73.54
		OSMW-6S		455149.40	1416267.11	586.61	586.38	2.00	80.00	506.61	90.00	496.61	88.78
		OSMW-8S		454625.51	1415147.34	584.64	584.33	2.00	77.41	507.23	87.41	497.23	86.70
	OSMW-9S			455705.63	1415409.73	594.66	594.37	2.00	88.80	505.86	98.80	495.86	101.30
	OSMW-10S			455019.93	1417400.39	555.82	558.59	2.00	47.20	508.62	57.20	498.62	58.20
	OSMW-11S			455459.42	1418006.57	552.04	551.64	2.00	37.25	514.79	47.25	504.79	47.20
PMW-3S	PMW-3S			455249.82	1417470.89	557.41	560.12	2.00	44.80	512.61	54.80	502.61	57.40
TMW-1S	TMW-1S	TMW-1S		455739.88	1417703.19	559.78	561.63	2.00	48.30	511.48	58.30	501.48	59.75
TMW-2S	TMW-2S	TMW-2S		455597.25	1416929.92	557.01	560.15	2.00	40.00	517.01	50.00	507.01	53.08

See notes on page 2.

Table 3

GE OHD 000 817 312
GE Aviation Evendale, Ohio - Groundwater IRM
Well Completion Data - Groundwater Quality Monitoring

Water-Bearing Zone	Well ID - VOC Sampling			Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter	Well Screen				Total Depth (ft bTOC) ³	
	Hydraulic Control Monitoring	Progress Monitoring ¹	Semiannual Monitoring ²						Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)		
LSG														
			AF-5D	455889.87	1417834.37	559.50	561.66	2.00	100.00	459.50	110.00	449.50	108.10	
AF-7D	AF-7D	AF-7D	AF-7D	455489.28	1417578.92	559.70	561.23	4.00	109.00	450.70	119.00	440.70	118.77	
AF-9D				455794.33	1416786.95	562.20	563.93	4.00	78.00	484.20	88.00	474.20	93.30	
AF-11D	AF-11D			456087.97	1416583.70	564.90	566.27	4.00	92.00	472.90	102.00	462.90	101.79	
AF-19D	AF-19D			455818.36	1417039.55	561.70	564.10	2.00	81.20	480.50	91.20	470.50	93.40	
		AF-21D	AF-21D	455941.03	1416777.12	560.00	559.61	2.00	80.00	480.00	90.00	470.00	90.11	
OSMW-1D	OSMW-1D	OSMW-1D	OSMW-1D	455082.67	1417738.40	551.10	554.16	2.00	80.00	471.10	90.00	461.10	92.75	
OSMW-3D	OSMW-3D	OSMW-3D	OSMW-3D	455309.10	1417107.28	557.10	559.91	2.00	131.00	426.10	141.00	416.10	143.31	
OSMW-4D	OSMW-4D	OSMW-4D	OSMW-4D	456143.93	1416386.96	565.50	565.14	2.00	127.00	438.50	137.00	428.50	135.94	
		OSMW-5D	OSMW-5D	452875.51	1416398.42	560.53	560.25	2.00	121.00	439.53	131.00	429.53	130.72	
		OSMW-6D	OSMW-6D	455147.40	1416265.11	586.38	586.08	2.00	149.77	436.61	159.77	426.61	162.20	
		OSMW-7D	OSMW-7D	456711.82	1415686.05	592.44	592.09	2.00	141.00	451.44	151.00	441.44	148.80	
		OSMW-8D	OSMW-8D	454625.45	1415147.03	584.64	584.34	2.00	175.30	409.34	185.30	399.34	187.20	
OSMW-9D	OSMW-9D			455705.86	1415409.84	594.66	594.39	2.00	166.00	428.66	176.00	418.66	175.60	
OSMW-10D	OSMW-10D			455020.11	1417400.16	555.82	558.61	2.00	130.00	425.82	140.00	415.82	142.63	
		OSMW-11D			455459.26	1418006.71	552.04	551.72	2.00	81.00	471.04	91.00	461.04	90.30
		PMW-2D			456024.30	1417902.40	560.05	562.47	2.00	125.00	435.05	135.00	425.05	139.70
PMW-3D	PMW-3D			455249.80	1417471.07	557.41	560.04	2.00	126.00	431.41	136.00	421.41	139.75	
PMW-4D	PMW-4D			456424.32	1416617.44	564.33	567.25	2.00	130.00	434.33	140.00	424.33	142.51	
		TMW-1D	TMW-1D	455740.26	1417702.92	559.78	562.02	2.00	94.30	465.48	104.30	455.48	106.45	
TMW-2D	TMW-2D	TMW-2D	TMW-2D	455597.15	1416930.07	557.01	559.86	2.00	117.30	439.71	127.30	429.71	129.32	

Notes

¹ Quarterly Progress Monitoring in the Perched, USG and LSG.² Semiannual sampling occurs in the second and fourth quarters.³ Total depths from ground surface (AF-13P, AF-13S).

Table 4

GE OHD 000 817 312
GE Aviation_Evendale, Ohio - Groundwater IRM
Summary of Groundwater Sampling Results (3Q-15) - Detected Parameters Only

Location Sample Date	AF-11D 9/4/2015	AF-11S 9/4/2015	AF-13P 9/4/2015	AF-13S 9/4/2015	AF-19D 9/3/2015	AF-19S 9/3/2015	AF-25P 9/3/2015	AF-4P 9/3/2015	AF-4S 9/3/2015	AF-5P 9/4/2015	AF-5S 9/4/2015
FIELD PARAMETERS units											
pH	S.U.	8.21	7.54	7.86	8.40	7.57	7.52	7.66	7.56	7.55	7.53
Conductivity (mS/cm)	mS/cm	0.457	0.598	0.5	0.686	0.601	0.733	1.713	1.327	0.852	0.861
Turbidity (NTUs)	NTUs	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DO (mg/L)	mg/L	0.22	0.88	0.43	0.58	0.56	0.56	0.69	1.23	0.65	0.74
Temperature (oC)	Deg C	16.74	16.74	20.25	16.91	16.44	16.87	20.03	16.21	15.86	16.06
ORP (mV)	mV	-279.0	-133.5	-140.1	-183.5	-131.4	-155.6	-11.5	102.2	-129.9	-143.4
DETECTABLE VOCs units											
1,1,1-Trichloroethane	ug/l	< 1	< 1	< 1	< 1	< 1	< 1	410	41	3.9	52
1,1-Dichloroethane	ug/l	< 1	< 1	< 1	< 1	< 1	< 1	0.49	J	< 1	< 4
1,1-Dichloroethene	ug/l	< 1	F1	< 1	< 1	< 1	< 1	78	6.1	2.6	7.2
1,2-Dichloroethane	ug/l	< 1	F1	< 1	< 1	< 1	< 1	49	1.2	0.87	J
Acetone	ug/l	4.6	J	6.6	J	4.7	J	< 10	< 10	< 10	< 40
Benzene	ug/l	< 1	F1	< 1	< 1	< 1	< 1	< 1	< 1	0.5	J
Chloroethane	ug/l	0.91	J	< 1	< 1	< 1	< 1	1.2	< 1	< 1	0.74
Chloroform	ug/l	< 1	F1	< 1	< 1	< 1	< 1	2.6	0.75	J	< 1
cis-1,2-Dichloroethene	ug/l	< 1	F1	< 1	< 1	12	< 1	< 1	72	2.3	19
Methylene Chloride	ug/l	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 4
Tetrachloroethene	ug/l	< 1		< 1	< 1	< 1	< 1	5.8	11	< 1	< 4
trans-1,2-Dichloroethene	ug/l	< 1	F1	< 1	< 1	< 1	< 1	8.4	< 1	< 1	< 1
Trichloroethene	ug/l	< 1	F1	< 1	< 1	< 1	< 1	380	83	2	160
Vinyl Chloride	ug/l	< 1		3	< 1	< 1	< 1	9.5	9.1	< 1	1.1

Notes:

1) J = Estimated

2) NM = Not Measured

3) See Table 3 for listing of semiannual wells

4) F1 - See Appendix A - MS/MSD recovery issue-Sample results not affected

Table 4

GE OHD 000 817 312
GE Aviation_Evendale, Ohio - Groundwater IRM
Summary of Groundwater Sampling Results (3Q-15) - Detected Parameters Only

Location Sample Date	AF-6S 9/3/2015	AF-7D 9/4/2015	AF-7P 9/4/2015	AF-7S 9/4/2015	AF-9S 9/4/2015	OSMW-10D 9/3/2015	OSMW-10P 9/3/2015	OSMW-10S 9/3/2015	OSMW-11D 9/2/2015	OSMW-11P 9/2/2015	OSMW-11S 9/2/2015
FIELD PARAMETERS											
pH	S.U.	7.49	7.44	7.33	7.44	7.12	7.37	7.30	7.24	7.45	7.21
Conductivity (mS/cm)	mS/cm	0.853	0.799	0.68	0.732	0.661	0.865	1.102	1.25	1.058	0.934
Turbidity (NTUs)	NTUs	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DO (mg/L)	mg/L	0.55	0.48	0.79	0.52	0.60	0.87	0.53	0.47	0.60	0.52
Temperature (oC)	Deg C	19.53	14.62	17.56	17.35	16.61	14.92	17.70	17.49	14.53	16.90
ORP (mV)	mV	-162.4	-125.0	-109.9	-139.0	-141.7	-37.7	-47.1	-107.0	-24.7	-101.2
DETECTABLE VOCs											
1,1,1-Trichloroethane	ug/l	< 1	< 1	< 1	< 10	< 1	< 1	11	10	< 4	< 1
1,1-Dichloroethane	ug/l	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 1	< 4	< 1
1,1-Dichloroethene	ug/l	< 1	< 1 F1	2.9	7.6 J	1.4	< 1	19	4.9	22	1.6
1,2-Dichloroethane	ug/l	< 1	< 1 F1	< 1	< 10	< 1	< 1	0.47 J	< 1	2.1 J	< 1
Acetone	ug/l	< 10	< 10	3 J	< 100	5 J	< 10	< 10	< 10	< 40	< 10
Benzene	ug/l	< 1	< 1 F1	< 1	< 10	< 1	< 1	< 1	< 1	< 4	< 1
Chloroethane	ug/l	< 1	< 1 F1	< 1	< 10	< 1	< 1	< 1	< 1	< 4	< 1
Chloroform	ug/l	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 1	< 4	< 1
cis-1,2-Dichloroethene	ug/l	< 1	< 1 F1	4.1	470	3.5	< 1	28	23	200	1.4
Methylene Chloride	ug/l	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 1	2 J	< 1
Tetrachloroethene	ug/l	< 1	< 1 F1	< 1	< 10	< 1	< 1	< 1	< 1	< 4	< 1
trans-1,2-Dichloroethene	ug/l	< 1	< 1 F1	< 1	< 10	< 1	< 1	< 1	< 1	4.5	< 1
Trichloroethene	ug/l	< 1	< 1 F1	< 1	< 10	< 1	0.47 J	23	15	22	< 1
Vinyl Chloride	ug/l	< 1	< 1 F1	3.9	530	14	1.5	< 1	< 1	< 4	< 1

Notes:

1) J = Estimated

2) NM = Not Measured

3) See Table 3 for listing of semiannual wells

4) F1 - See Appendix A - MS/MSD recovery issue

Table 4

GE OHD 000 817 312
GE Aviation_Evendale, Ohio - Groundwater IRM
Summary of Groundwater Sampling Results (3Q-15) - Detected Parameters Only

Location Sample Date	OSMW-12P 9/2/2015	OSMW-13P 9/2/2015	OSMW-1D 9/2/2015	OSMW-1P 9/2/2015	OSMW-1S 9/2/2015	OSMW-3D 9/3/2015	OSMW-3S 9/3/2015	OSMW-4D 9/2/2015	OSMW-4S 9/2/2015	OSMW-6D 9/2/2015	OSMW-9D 9/2/2015
FIELD PARAMETERS units											
pH	S.U.	7.58	7.15	7.72	7.17	7.96	7.36	7.48	7.06	7.44	7.63
Conductivity (mS/cm)	mS/cm	0.702	0.973	0.874	0.999	0.75	0.839	0.762	0.722	0.591	0.624
Turbidity (NTUs)	NTUs	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DO (mg/L)	mg/L	0.38	0.61	0.32	0.64	0.40	0.51	0.80	0.41	0.36	0.31
Temperature (oC)	Deg C	14.98	15.63	15.17	15.78	15.50	14.67	17.45	15.42	16.52	15.79
ORP (mV)	mV	34.5	9.8	-180.1	12.6	-192.7	-121.6	-151.5	-142.2	-175.2	-133.1
DETECTABLE VOCs units											
1,1,1-Trichloroethane	ug/l	2.7	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 1
1,1-Dichloroethane	ug/l	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 1
1,1-Dichloroethene	ug/l	2	2.5	1.3	2.5	8.1	< 1	< 1	3.2	0.45 J	3.8 J
1,2-Dichloroethane	ug/l	< 1	< 1	< 1	< 1	2.9	0.39 J	< 1	< 1	< 5	< 1
Acetone	ug/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	3.4 J	< 50
Benzene	ug/l	< 1	< 1	0.44 J	< 1	0.61 J	0.82 J	< 1	< 1	< 1	< 1
Chloroethane	ug/l	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 1
Chloroform	ug/l	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	ug/l	< 1	0.81 J	18	< 1	690	190	< 1	4.7	< 1	16
Methylene Chloride	ug/l	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 1
Tetrachloroethene	ug/l	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 1
trans-1,2-Dichloroethene	ug/l	< 1	< 1	< 1	< 1	1.1	23	< 1	< 1	< 5	< 1
Trichloroethene	ug/l	3.3	< 1	< 1	< 1	< 1	270	< 1	< 1	< 5	< 1
Vinyl Chloride	ug/l	< 1	< 1	49	< 1	520	1.5	1.2	11	< 1	150

Notes:

1) J = Estimated

2) NM = Not Measured

3) See Table 3 for listing of semiannual wells

4) F1 - See Appendix A - MS/MSD recovery issue

Table 4

GE OHD 000 817 312
GE Aviation_Evendale, Ohio - Groundwater IRM
Summary of Groundwater Sampling Results (3Q-15) - Detected Parameters Only

Location Sample Date	OSMW-9S 9/2/2015	PMW-2D 9/3/2015	PMW-3D 9/3/2015	PMW-3P 9/3/2015	PMW-3S 9/3/2015	PMW-4D 9/4/2015	TMW-1D 9/4/2015	TMW-1P 9/4/2015	TMW-1S 9/4/2015	TMW-2D 9/3/2015	TMW-2S 9/3/2015
FIELD PARAMETERS units											
pH	S.U.	7.48	7.54	7.25	7.25	7.57	11.78	7.25	7.56	7.10	7.48
Conductivity (mS/cm)	mS/cm	0.863	0.734	0.607	0.761	0.614	0.632	0.718	0.769	1.537	0.85
Turbidity (NTUs)	NTUs	NM									
DO (mg/L)	mg/L	0.43	0.52	0.50	0.77	0.38	0.45	0.49	0.98	0.61	0.46
Temperature (oC)	Deg C	16.46	13.91	14.58	17.60	17.51	15.54	15.05	17.99	16.90	15.19
ORP (mV)	mV	-191.5	-118.6	-120.7	-18.6	-169.2	-431.6	-141.1	-30.6	-141.5	-163.9
DETECTABLE VOCs units											
1,1,1-Trichloroethane	ug/l	< 4	< 1	< 1	20	2	< 1	< 1	90	< 1	< 1
1,1-Dichloroethane	ug/l	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethene	ug/l	< 4	< 1	3.1	71	4.4	< 1	< 1	30	< 1	0.93
1,2-Dichloroethane	ug/l	< 4	< 1	< 1	0.97	J	< 1	< 1	9.6	< 1	0.53
Acetone	ug/l	< 40	< 10	< 10	< 10	< 10	8.2	J	< 10	6.5	J
Benzene	ug/l	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2
Chloroethane	ug/l	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform	ug/l	< 4	< 1	< 1	< 1	< 1	< 1	< 1	0.99	J	< 1
cis-1,2-Dichloroethene	ug/l	39	< 1	11	150	20	< 1	< 1	31	4.5	430
Methylene Chloride	ug/l	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Tetrachloroethene	ug/l	< 4	< 1	< 1	< 1	< 1	< 1	< 1	0.89	J	< 1
trans-1,2-Dichloroethene	ug/l	< 4	< 1	< 1	< 1	< 1	< 1	< 1	1.6	< 1	130
Trichloroethene	ug/l	< 4	< 1	< 1	21	1.2	< 1	< 1	140	< 1	2.4
Vinyl Chloride	ug/l	110	< 1	15	2	15	3.1	< 1	6.1	12	21

Notes:

1) J = Estimated

2) NM = Not Measured

3) See Table 3 for listing of semiannual wells

4) F1 - See Appendix A - MS/MSD recovery issue

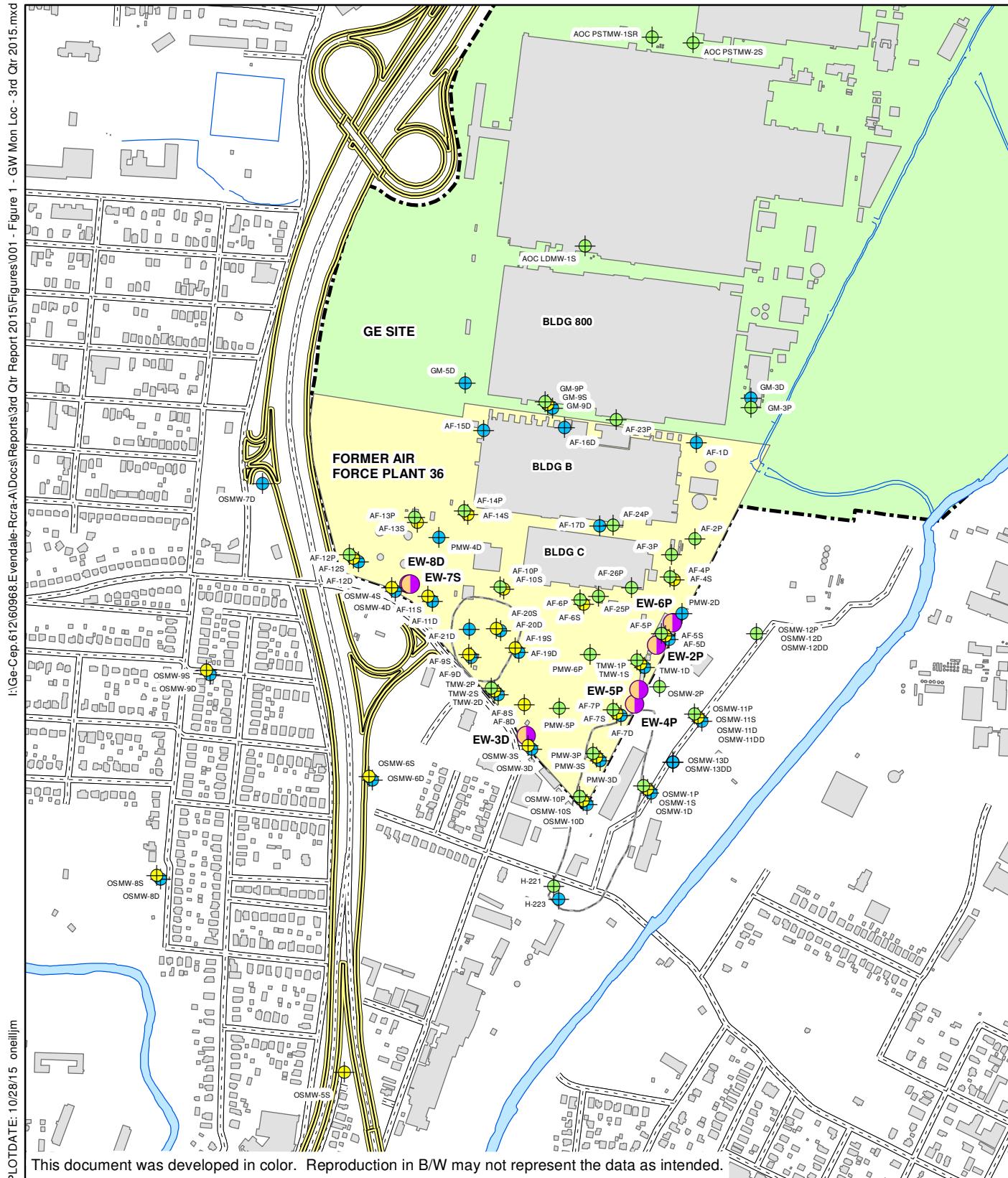
Table 5
GE OHD 000 817 312
Evendale, Ohio
Groundwater Chemical Cross Contamination Analyses

			9/2/2015			
Well ID	TCA_grp UTL Value ^{1,2} (µmol/L)	TCE_grp UTL Value ^{1,2} (µmol/L)	TCA Group Values (µmol/L)	TCE Group Values (µmol/L)	TCA Group Comparison	TCE Group Comparison
AF-11D	0.0092	2.3875	0.0141	0.0000	REJECT	ACCEPT
AF-11S	.0842	3.1943	0.00	0.05	ACCEPT	ACCEPT
AF-13P	0.0359	0.0359	0.00	0.00	ACCEPT	ACCEPT
AF-13S	0.0359	0.0359	0.00	0.12	ACCEPT	REJECT
AF-15D	0.0485	.1864	0.00	0.00	ACCEPT	ACCEPT
AF-15S	20.0950	15.2677	0.00	0.00	ACCEPT	ACCEPT
AF-19D	0.0359	0.0359	0.00	0.00	ACCEPT	ACCEPT
AF-19S	2.0047	3.6624	0.00	0.15	ACCEPT	ACCEPT
AF-1D	.1316	.0145	0.00	0.00	ACCEPT	ACCEPT
AF-1P	.1114	.2074	0.00	0.00	ACCEPT	ACCEPT
AF-25P	12.3782	11.3839	4.39	3.89	ACCEPT	ACCEPT
AF-2S	.4842	2.0838	0.00	0.00	ACCEPT	ACCEPT
AF-4P	0.0359	0.0359	0.38	0.72	REJECT	REJECT
AF-4S	1.1853	5.9427	0.06	0.23	ACCEPT	ACCEPT
AF-5P	1.3739	4.5782	0.49	1.28	ACCEPT	ACCEPT
AF-5S	2.5715	9.0739	0.07	0.76	ACCEPT	ACCEPT
AF-6S	0.0359	0.0359	0.00	0.00	ACCEPT	ACCEPT
AF-7D	.0240	.0261	0.00	0.00	ACCEPT	ACCEPT
AF-7P	10.8813	9.7516	0.03	0.10	ACCEPT	ACCEPT
AF-7S	.7677	31.8240	0.08	13.33	ACCEPT	ACCEPT
AF-9S	.0694	0.7894	0.01	0.26	ACCEPT	ACCEPT
OSMW-10D	.1633	.1269	0.00	0.03	ACCEPT	ACCEPT
OSMW-10P	3.9915	2.7868	0.28	0.46	ACCEPT	ACCEPT
OSMW-10S	3.5411	1.2163	0.12	0.35	ACCEPT	ACCEPT
OSMW-11D	.7604	8.2552	0.24	2.28	ACCEPT	ACCEPT
OSMW-11P	.0232	.0066	0.02	0.01	ACCEPT	REJECT
OSMW-11S	1.0371	11.9864	0.25	2.14	ACCEPT	ACCEPT
OSMW-12P	.0529	.0352	0.04	0.03	ACCEPT	ACCEPT
OSMW-12S	.9999	4.6360	0.00	0.00	ACCEPT	ACCEPT
OSMW-13D	.3895	7.9242	0.00	0.00	ACCEPT	ACCEPT
OSMW-13DD	.5903	7.7146	0.00	0.00	ACCEPT	ACCEPT
OSMW-13P	.0510	.0688	0.03	0.01	ACCEPT	ACCEPT
OSMW-13S	.6181	8.7977	0.00	0.00	ACCEPT	ACCEPT
OSMW-1D	1.0602	23.5751	0.01	0.97	ACCEPT	ACCEPT
OSMW-1P	0.0386	.0383	0.03	0.00	ACCEPT	ACCEPT
OSMW-1S	1.8189	54.1122	0.11	15.45	ACCEPT	ACCEPT
OSMW-3D	.0969	13.9650	0.00	4.27	ACCEPT	ACCEPT
OSMW-3S	0.0952	0.8117	0.00	0.02	ACCEPT	ACCEPT
OSMW-4D	.1902	1.2387	0.03	0.22	ACCEPT	ACCEPT
OSMW-4S	.1184	7.8398	0.00	0.00	ACCEPT	ACCEPT
OSMW-6D	.8025	3.8001	0.04	2.57	ACCEPT	ACCEPT
OSMW-9D	.0359	.4657	0.00	0.16	ACCEPT	ACCEPT
OSMW-9S	.0327	6.9411	0.0000	2.16	ACCEPT	ACCEPT
PMW-2D	.0021	.0359	0.00000	0.0000000	ACCEPT	ACCEPT
PMW-3D	3.1451	2.5338	0.03	0.35	ACCEPT	ACCEPT
PMW-3P	2.5478	4.0693	0.88	1.74	ACCEPT	ACCEPT
PMW-3S	2.3156	2.3051	0.06	0.46	ACCEPT	ACCEPT
PMW-4D	.0359	.1228	0.00	0.05	ACCEPT	ACCEPT
TMW-1D	.0359	.0093	0.00	0.00	ACCEPT	ACCEPT
TMW-1P	3.1442	5.8024	1.08	1.50	ACCEPT	ACCEPT
TMW-1S	0.2465	10.57	0.00	0.24	ACCEPT	ACCEPT
TMW-2D	.0454	9.85	0.01	6.13	ACCEPT	ACCEPT
TMW-2S	.0039	.0254	0.00	0.03	ACCEPT	REJECT

Footnotes:

1. The methodology for calculating the upper tolerance limit (UTL) is included in the Performance Monitoring Plan.
2. The introwell analysis for AF-4P (TCA and TCE Groups), AF-11D (TCA Group), AF-13S (TCE Group), OSMW-11P (TCE Group) and TMW-2S (TCE Group) were triggered because the analysis compared the UTL values developed from non-detectable or low detections of baseline concentrations and is triggered by a slight increase in CVOCs and are not an indication of vertical or lateral cross-contamination.

Figures

FIGURE 1

**GE
EVENDALE, OHIO**

N

LEGEND

- PERCHED MONITORING WELL LOCATION
- USG MONITORING WELL LOCATION
- LSG MONITORING WELL LOCATION
- EXTRATION WELL

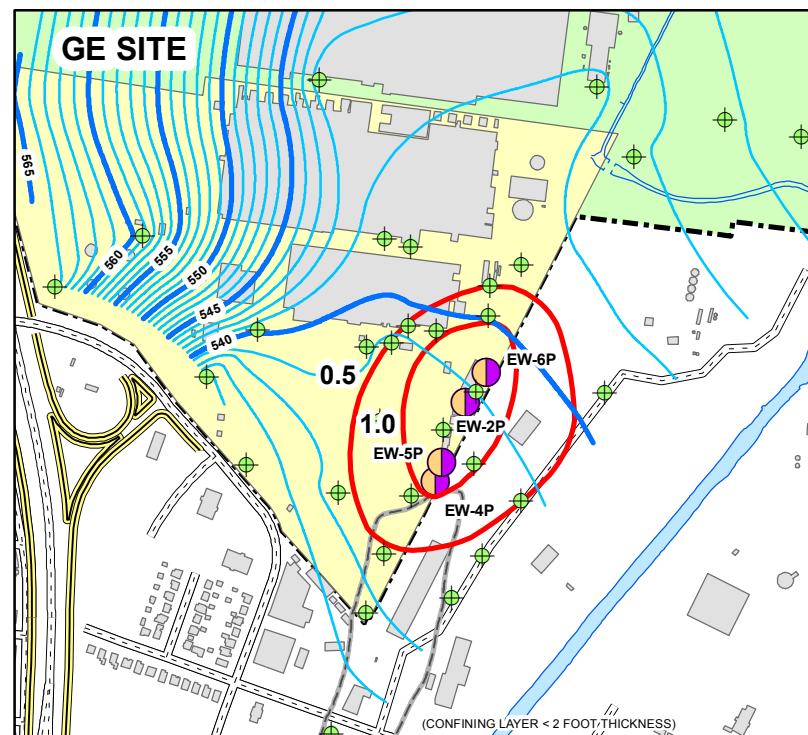
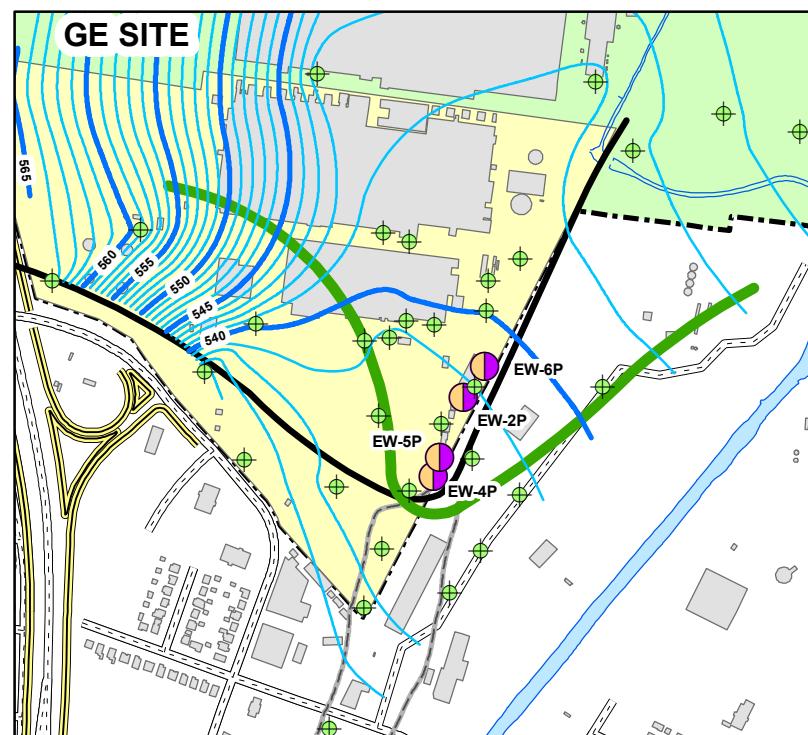
**GROUNDWATER IRM
MONITORING LOCATIONS**

0 400 800 1,200 1,600
Feet

FIGURE 2

I:\Ge-Cep\612\60968\Evendale-Rcrs-AIDocs\Reports\3rd Qtr Report 2015\Figures002 - Figure 2 - Perched - 3rd Qtr 2015.mxd

PLOT DATE: 11/03/2015 oneilljm

Perched Zone**Approximate Drawdown (ft)**
September 28, 2015*Based on Manual & Transducer Measurements***Estimated Drawdown
(feet)** **Perched Zone****Design Capture Zone (320 gpm)** **Apparent Capture Zone (116 gpm)
3rd Qtr 2015** 

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GE
EVENDALE, OHIO

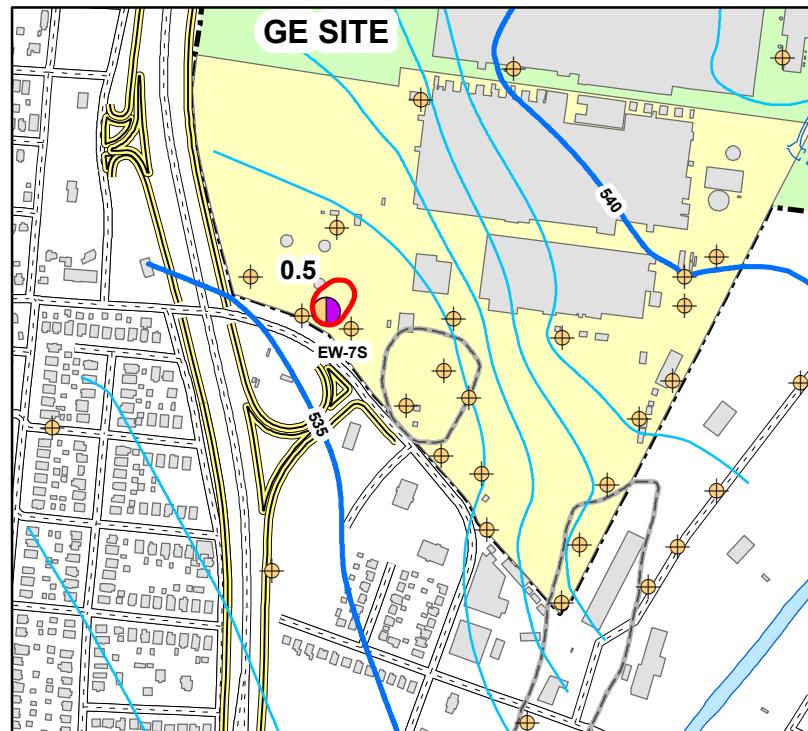
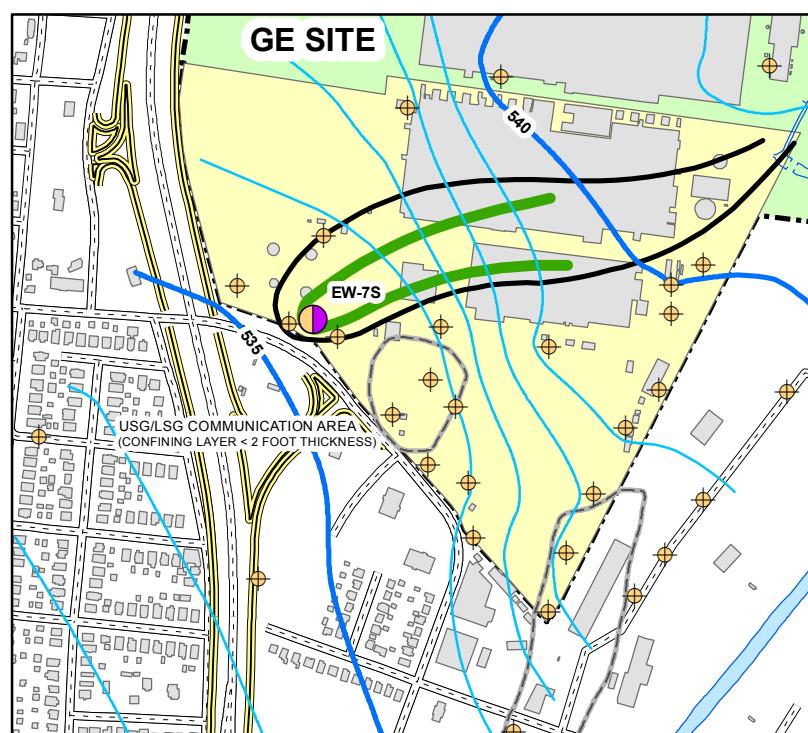
N

**PERCHED UNIT
ESTIMATED DRAWDOWN
AND CAPTURE ZONE**

FIGURE 3

I:\Ge-Cert\61260968 Evendale-Rcrs-AID\Docs\Reports\3rd Qtr Report 2015\Figures\003 - Figure 3 - USG - 3rd Qtr 2015.mxd

PLOT DATE: 03/14/13 oneilljm

USG Zone**Approximate Drawdown (ft)**
September 28, 2015*Based on Manual & Transducer Measurements***Estimated Drawdown
(feet)** —————**USG Zone****Design Capture
Zone (80 gpm)** —————**Apparent Capture
Zone (4 gpm)
3rd Qtr 2015** —————

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**GE
EVENDALE, OHIO****USG UNIT
ESTIMATED DRAWDOWN
AND CAPTURE ZONE**

FIGURE 4

I:\Ge-Cepo\612\60968-Evendale-RcrA\DOCS\Reports\3rd Qtr Report 2015\Figures\004 - Figure 4 - LSG - 3rd Qtr 2015.mxd

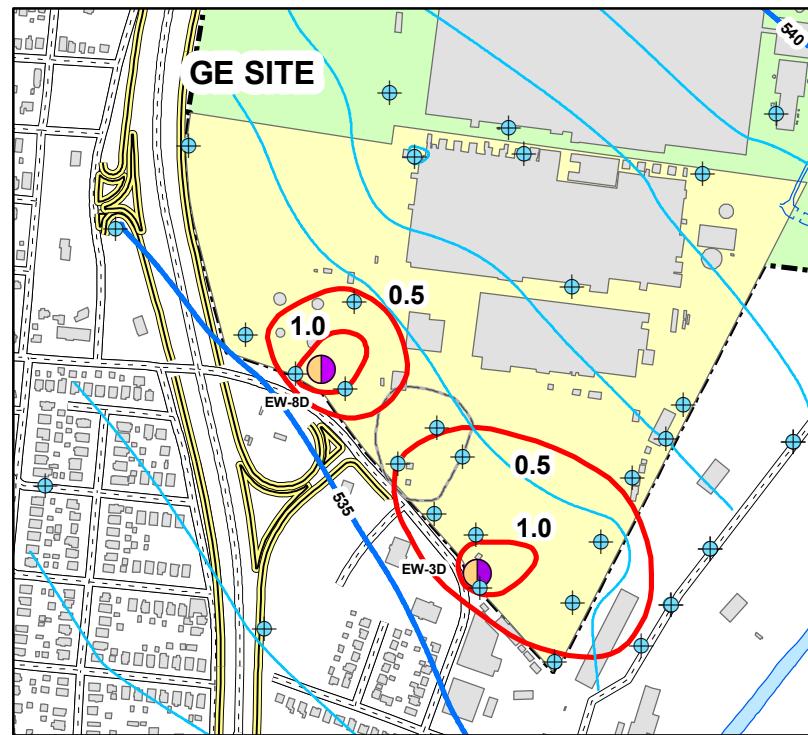
PLOT DATE: 6/11/2014 oneilljm

LSG Zone

Approximate Drawdown (ft)
September 28, 2015

Based on Manual & Transducer Measurements

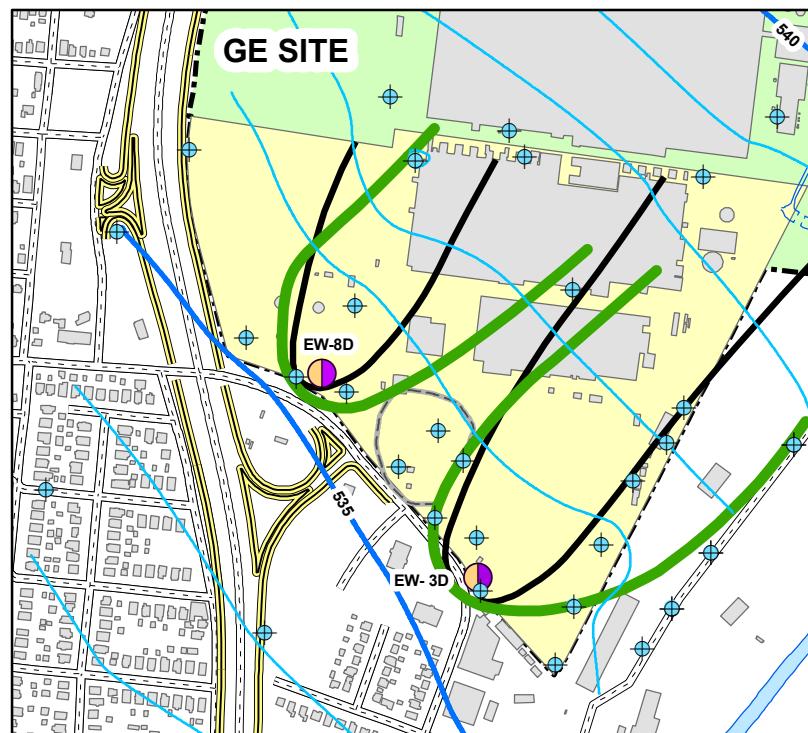
**Estimated Drawdown
(feet)** ——————



LSG Zone

**Design Capture
Zone (160 gpm)** ——————

**Apparent Capture
Zone (99 gpm)
3rd Qtr 2015** ——————



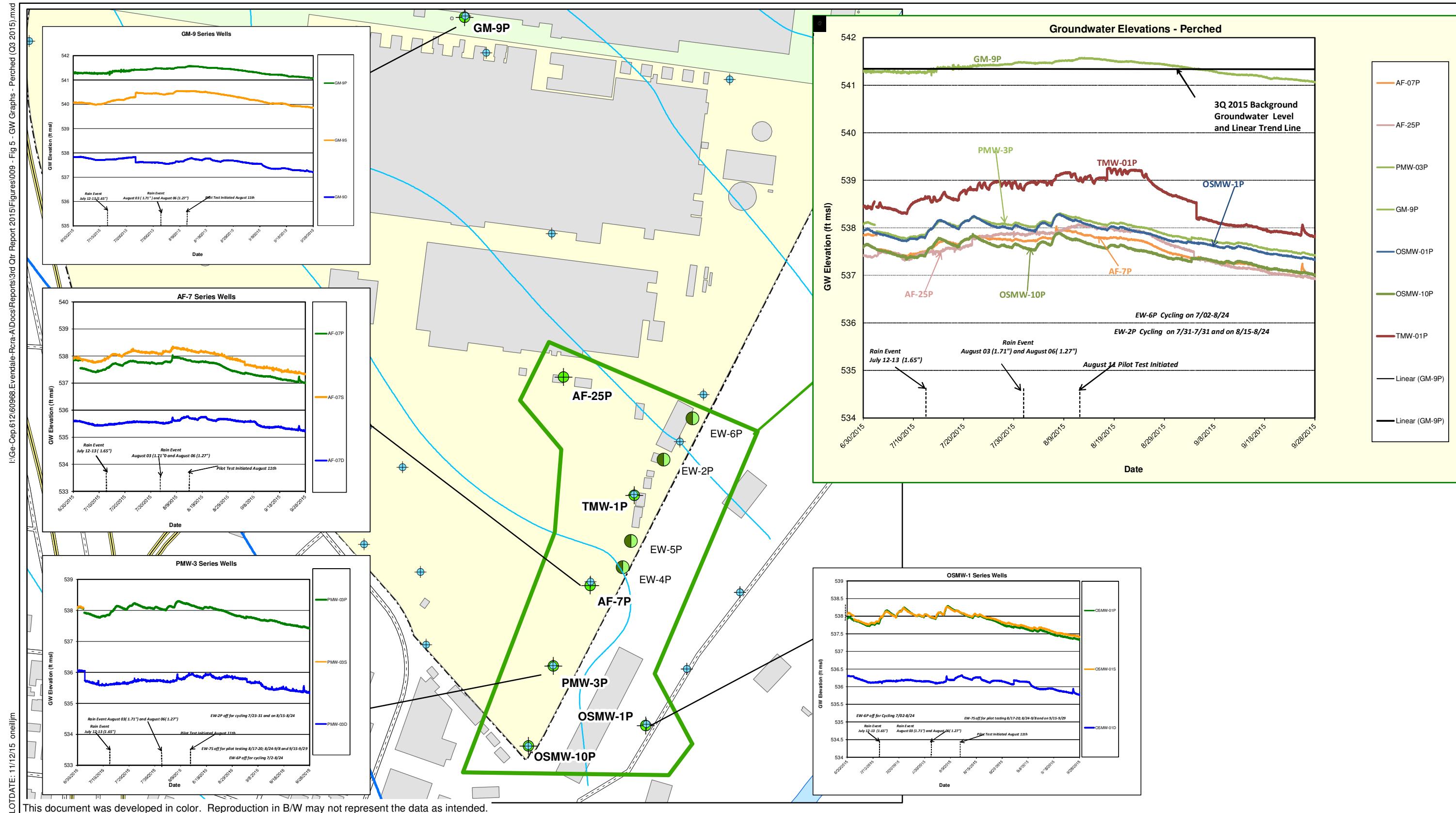
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**GE
EVENDALE, OHIO**

N

**LSG UNIT
ESTIMATED DRAWDOWN
AND CAPTURE ZONES**

FIGURE 5

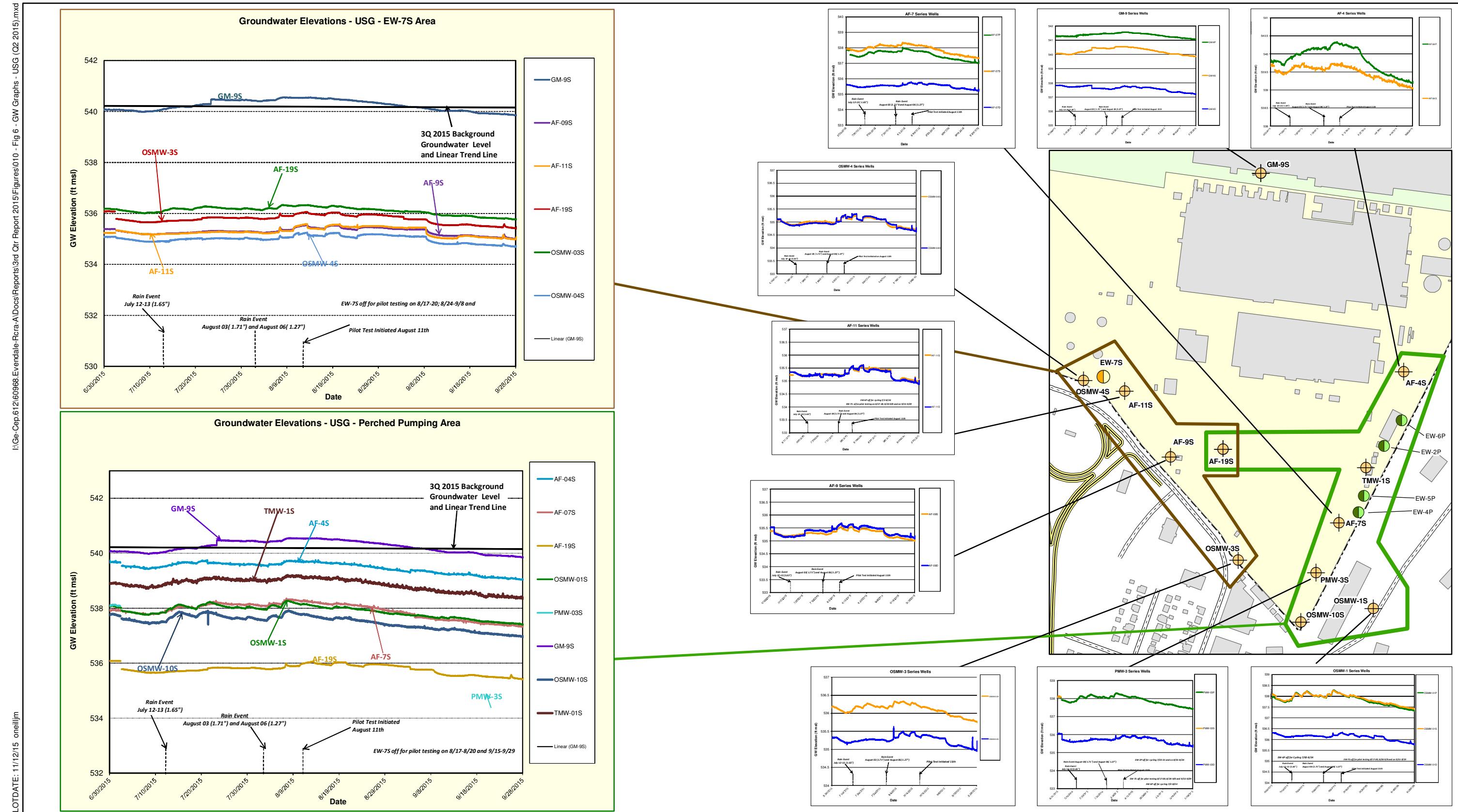
**LEGEND**

- PERCHED MONITORING WELL
- PERCHED EXTRACTION WELL

**GE
EVENDALE, OHIO**

0 100 200 400 600 800
Feet

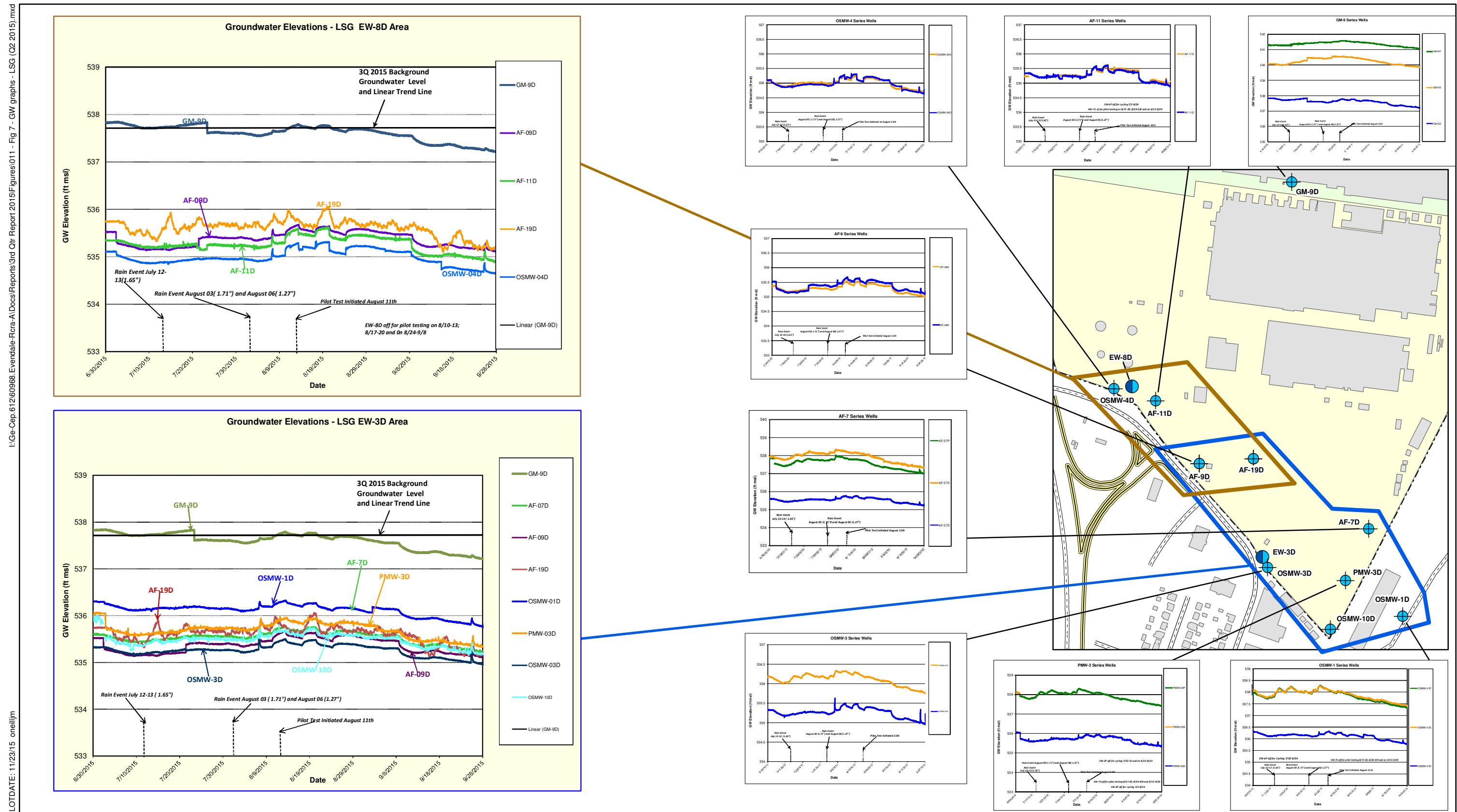
**GROUNDWATER ELEVATION HYDROGRAPHS
PERCHED UNIT
2015 3rd QUARTER**



**GE
EVENDALE, OHIO**

0 100 200 400 600 800
Feet

**GROUNDWATER ELEVATION HYDROGRAPHS
USG UNIT
2015 3rd QUARTER**



LEGEND

-  LSG MONITORING WELL
 -  LSG EXTRACTION WELL

**GE
EVENDALE, OHIO**

0 100 200 400 600 800

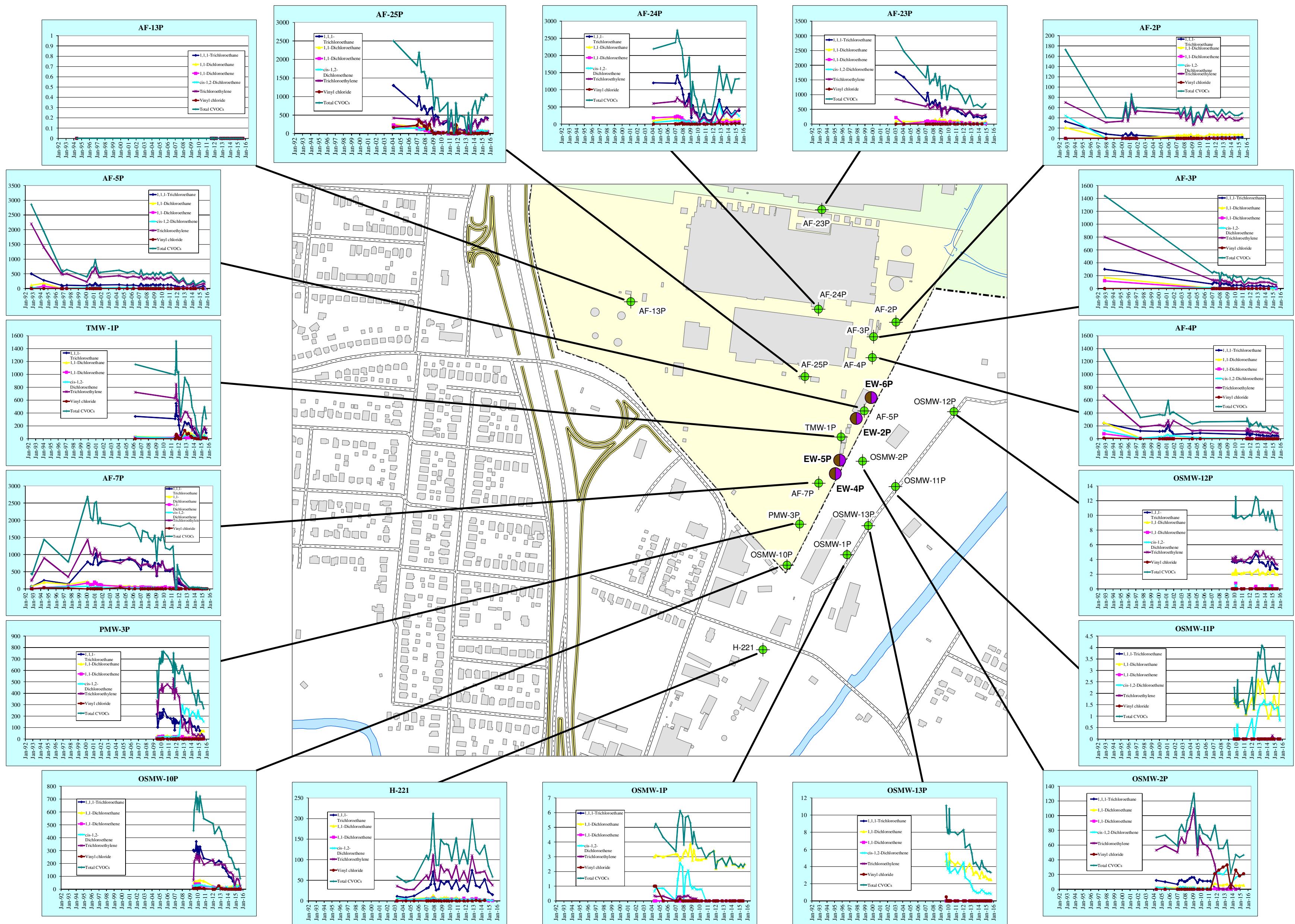
Feet

GROUNDWATER ELEVATION HYDROGRAPHS

LSG UNIT

2015 3rd QUARTER





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FIGURE 8**LEGEND**

● PERCHED ZONE MONITORING WELL - GROUNDWATER SAMPLE COLLECTED FOR ANALYTICAL ANALYSIS

● PERCHED ZONE EXTRACTION WELL

GRAPH KEY	
● 1,1,1-TRICHLOROETHANE	● 1,1-DICHLOROETHANE
● 1,1-DICHLOROETHENE	● CIS-1,2-DICHLOROETHENE
● TRICHLOROETHYLENE	● VINYL CHLORIDE
● TOTAL CVOCs	

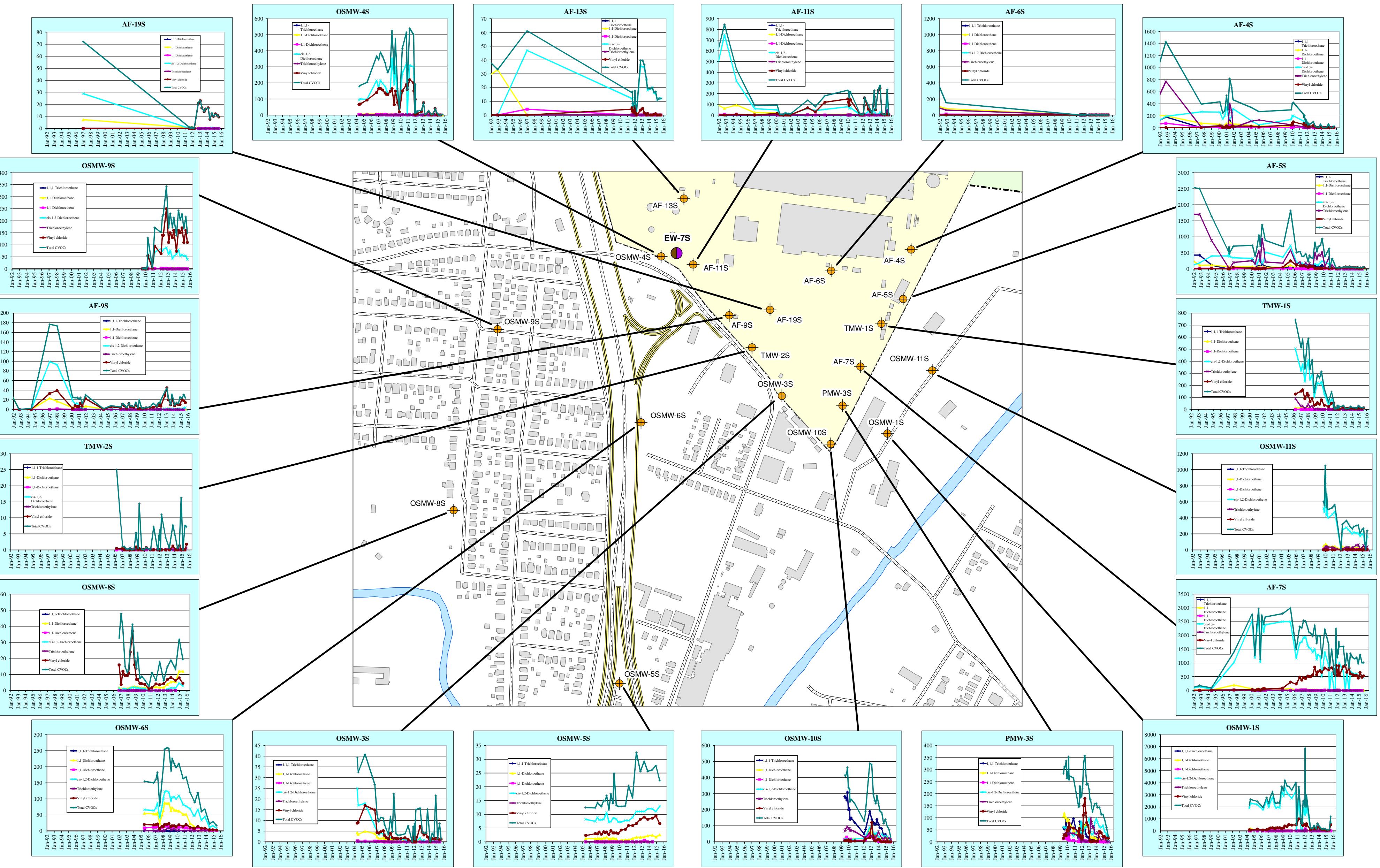
NOTES:
1. RESULTS ARE SHOWN IN ug/l.
2. NON-DETECTED RESULTS ARE SHOWN AT THE X AXIS.
3. CONCENTRATION SCALE MAY VARY BY GRAPH.

PERCHED ZONE HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR IRM MONITORING WELLS

0 250 500 1,000
Feet

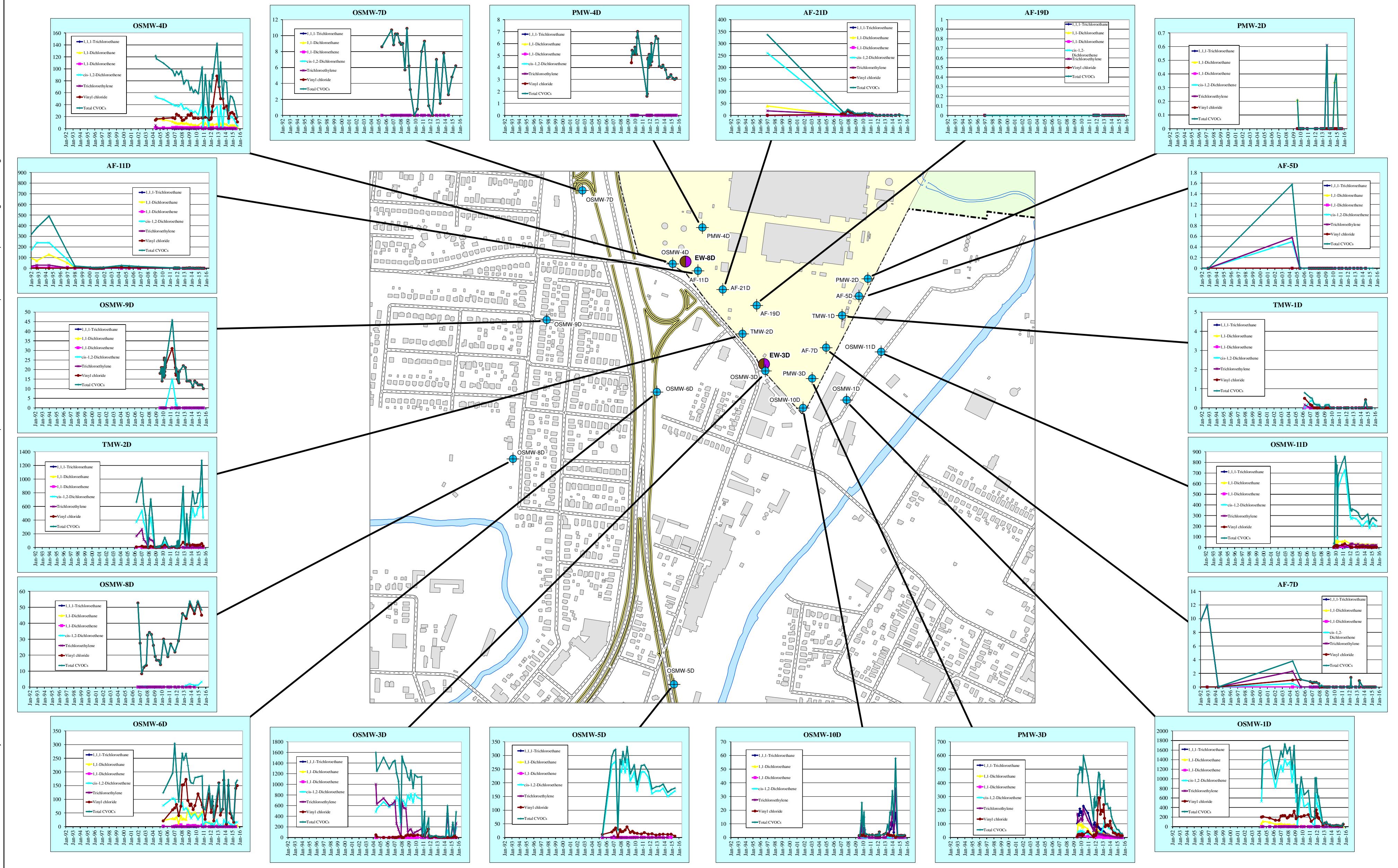
OCTOBER 2015
612\60968-005

O'BRIEN & GERE



UPPER SAND AND GRAVEL HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR IRM MONITORING WELLS

OCTOBER 2015
612\60698-006**O'BRIEN & GERE**



LOWER SAND AND GRAVEL HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR IRM MONITORING WELLS

GE
EVENDALE, OHIO

0 250 500 1,000
Feet

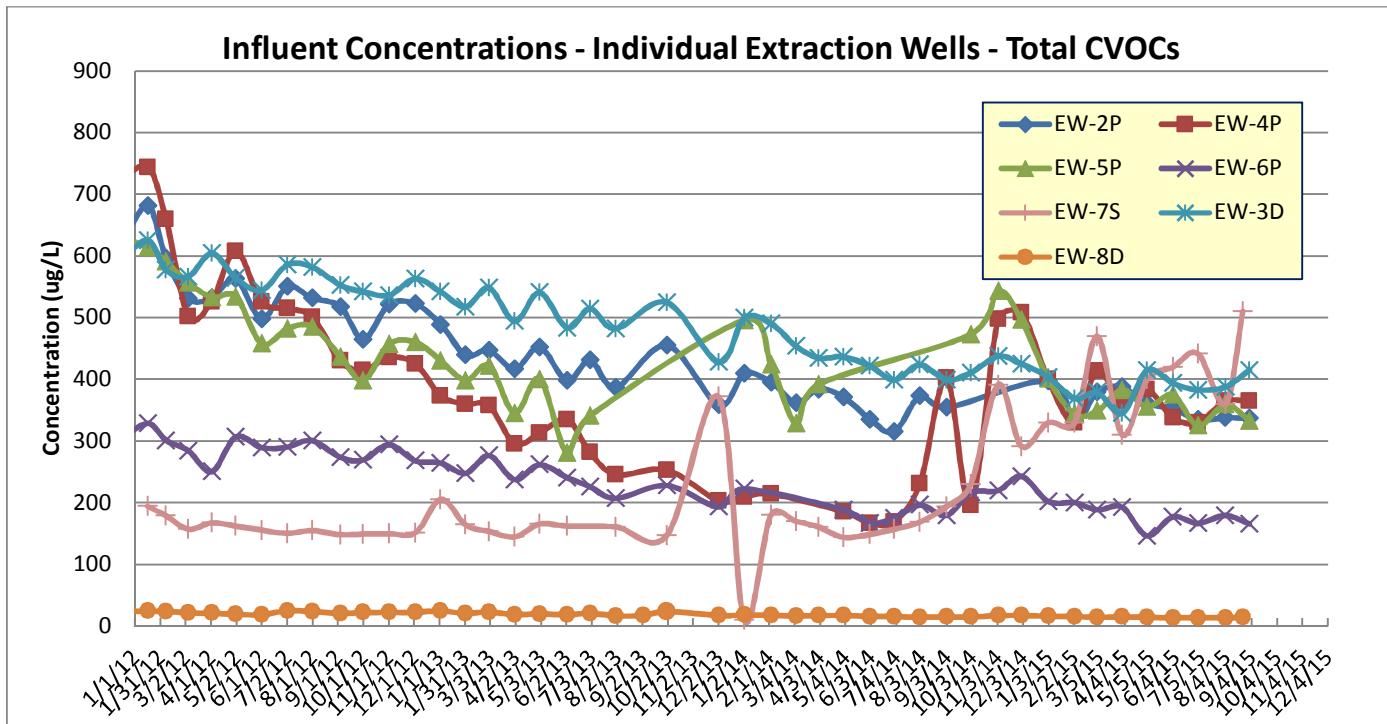
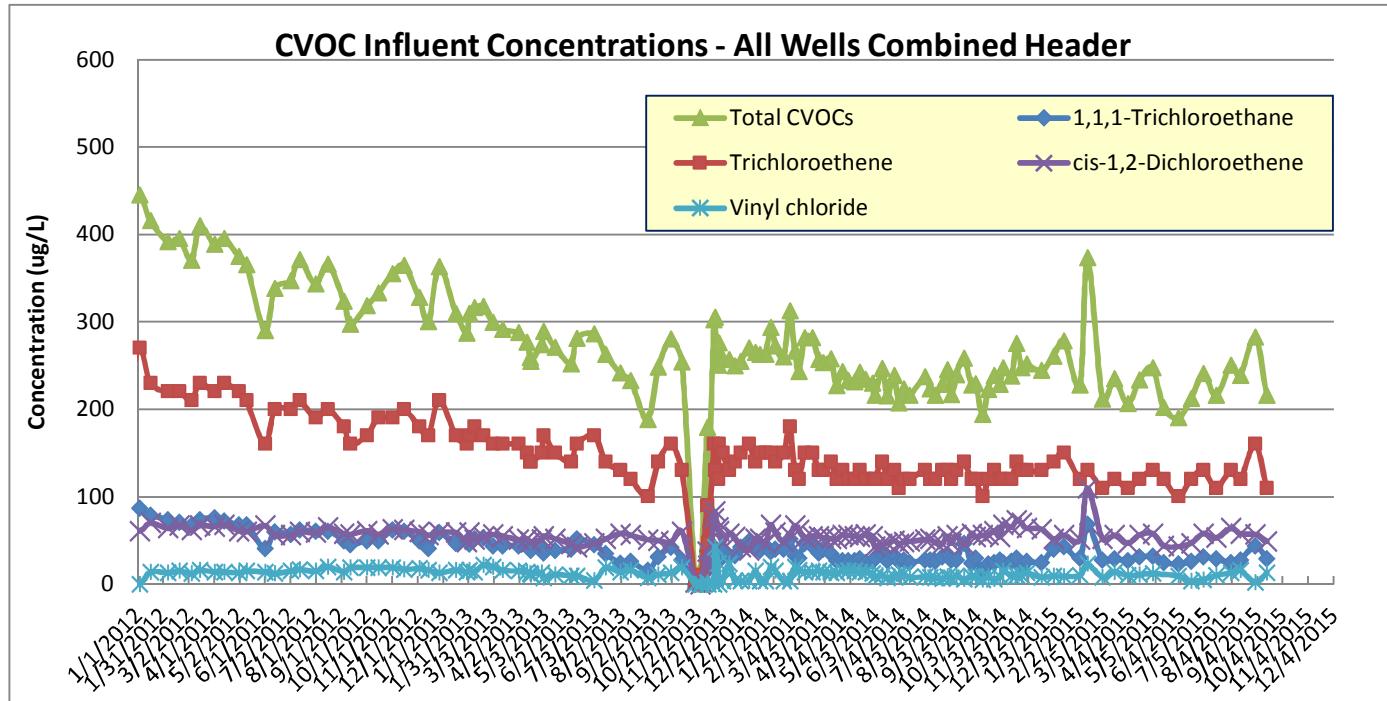
FIGURE 10



OCTOBER 2015
612/60968-007

FIGURE 11

Total CVOC Concentration Plots – Extraction Wells



Appendices

Appendix A
*IRM Groundwater Sampling
Program QA/QC Results and
Data Verification*

APPENDIX A QUALITY ASSURANCE/QUALITY CONTROL SUMMARY

Level A data verification was performed by O'Brien & Gere Engineers, Inc. to assess groundwater IRM performance monitoring data quality for samples collected during the Third Quarter 2015 (September 2, 2015 through September 4, 2015). Data verification was performed in accordance with the *IRM Performance Monitoring Plan* dated December 2010. The data verification level (Level A) for the performance samples was selected based upon data use (screening and trend analysis) and the quality of the laboratory data. Data verification was utilized to confirm the quality of the laboratory (TestAmerica Buffalo, Inc. (TA Buffalo) of Amherst, New York), which has an established record of acceptable quality for target analyte data from the routine groundwater IRM performance monitoring program. The Level A data verification included review of: (1) laboratory documentation, (2) chain-of-custody (COC) documentation, (3) target analyte results, (4) laboratory data qualifiers, (5) laboratory quantitation limits and method detection limits, (6) laboratory blank analysis, and (7) quality control samples.

The results of the Level A data verification indicated the following:

- Laboratory documentation was complete.
- Chain-of-custody (COC) documentation was complete.
- Target analyte results and data qualifiers were reported in accordance with the project requirements.
- Laboratory blank analysis did not indicate evidence of artifacts from the sampling or analytical process; therefore, the associated data is usable as reported.
- Acetone and methylene chloride were detected at concentrations of 4.5 µg /l and 0.48 µg /l in the trip blank (Trip Blank) associated with batch 263521. However, none of the affected samples contained acetone at concentrations above its reporting limit of 10 µg /l and/or detection limit; therefore, the associated data is considered usable as reported for non-detects, and as non-detected for any detected concentrations. None of the affected samples contained methylene chloride at concentrations above its detection limit; therefore, the associated data is usable as reported.
- Laboratory quantitation limits are within the limits listed in the QAPP, except for acetone and 2-butanone which were reported as 10 µg /l (SAP QLs are 5 µg /l). The reporting limits for acetone and 2-butanone reported by TA Buffalo were revised from 5 µg/l to 10 µg/l.
- The matrix spike / matrix spike duplicate (MS/MSD) recoveries were within control limits; therefore, the associated data is usable as reported.
- The surrogate recoveries for the samples were within control limits, except for the surrogate recovery for AF-19D-090315, which was outside the upper control limit. This sample did not contain any target analytes above their respective reporting limits; therefore, re-extraction and/or re-analysis was not performed, and the associated data is usable as reported.
- The continuing calibration verification (CCV) results were within control limits, except for the CCV associated with batch 263386 due to the recovery of dibromochloromethane above its upper control limit. However, the samples associated with this CCV were non-detects for the affected analyte; therefore, the associated data is usable as reported.
- The laboratory control samples (LCS) were within control limits, except for the LCS for batch 263521 due to the recovery of acetone outside of its control limit. Therefore, acetone was biased high in the LCS and were not detected above the reporting limit in the associated samples; therefore, the associated data is considered usable as reported for non-detects, and as non-detected for any detected concentrations. The affected samples included: Trip Blank, AF-11D-090415, AF-11S-090415, PMW-4D-090415, AF-13S-090415, AF-13P-090415, ADW-150-090415, AF-9S-090415, AF-5S-090415, TMW-1D-090415, TMW-1S-090415, TMW-1P-090415, AF-7P-090415, ADW-110-090415 and AF-5P-090415.

NOVEMBER 2015

PAGE 2

- Twelve samples were diluted to bring the target analytes into the calibration range: AF-5P-090415, AF-7S-090415, AF-25P-090315, OSMW-1S-090215, OSMW-3D-090315, OSMW-6D-090215, OSMW-9S-090215, OSMW-11S-090215, OSMW-11D-090215, PMW-3P-090315, TMW-1P-090415 and TMW-2D-090315. Elevated reporting limits are provided.

The overall usability for the performance monitoring data is acceptable for the intended use.

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